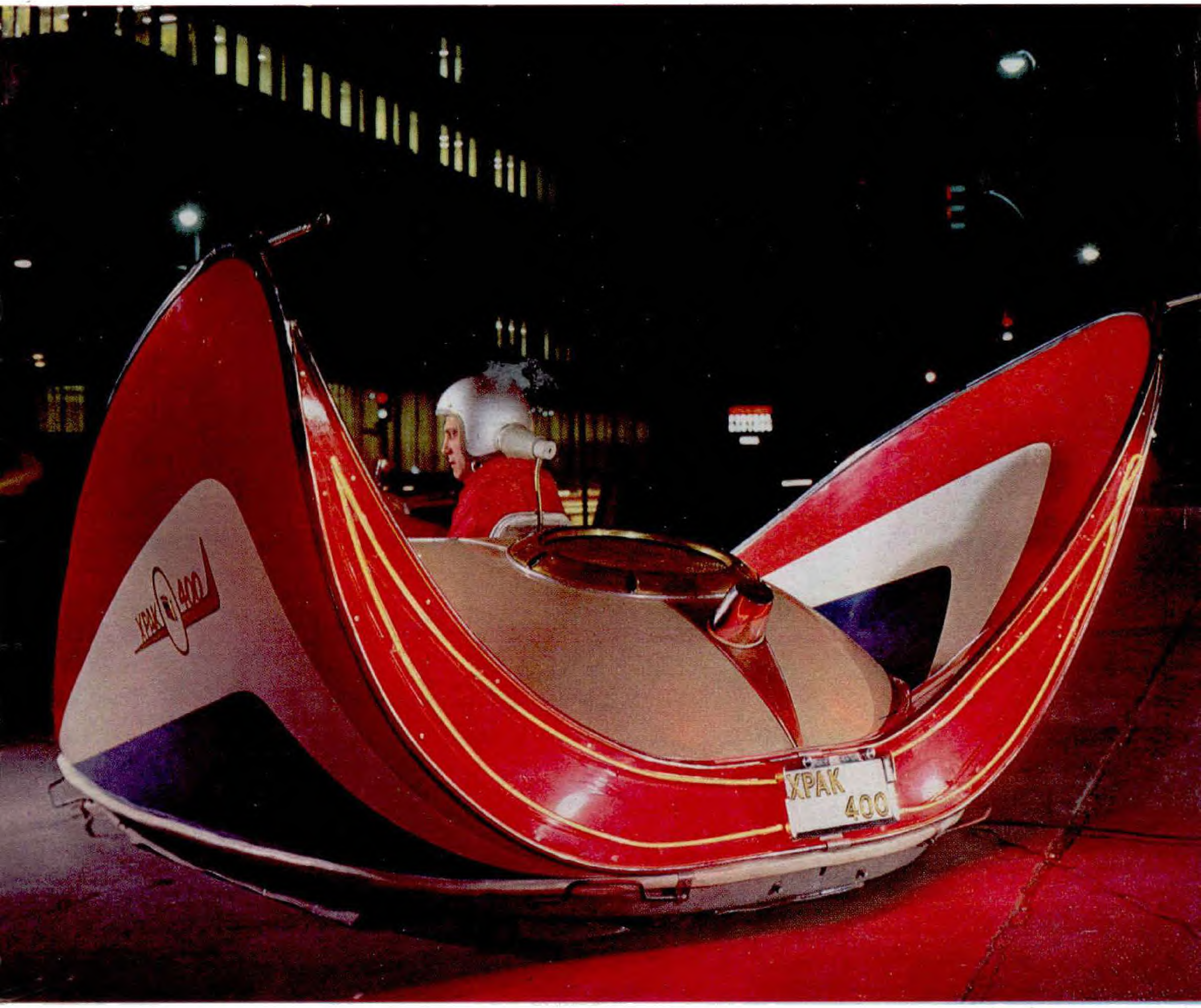
MODEL THE 1912 AVRO 'F' – PLANS INSIDE

meccano magazine

July

1s.6d.



the practical boy's hobbies magazine

1965

IN THIS ISSUE

- Submarine 'plane and Lunarcraft
- 'Do-it-Yourself' Radio Kits

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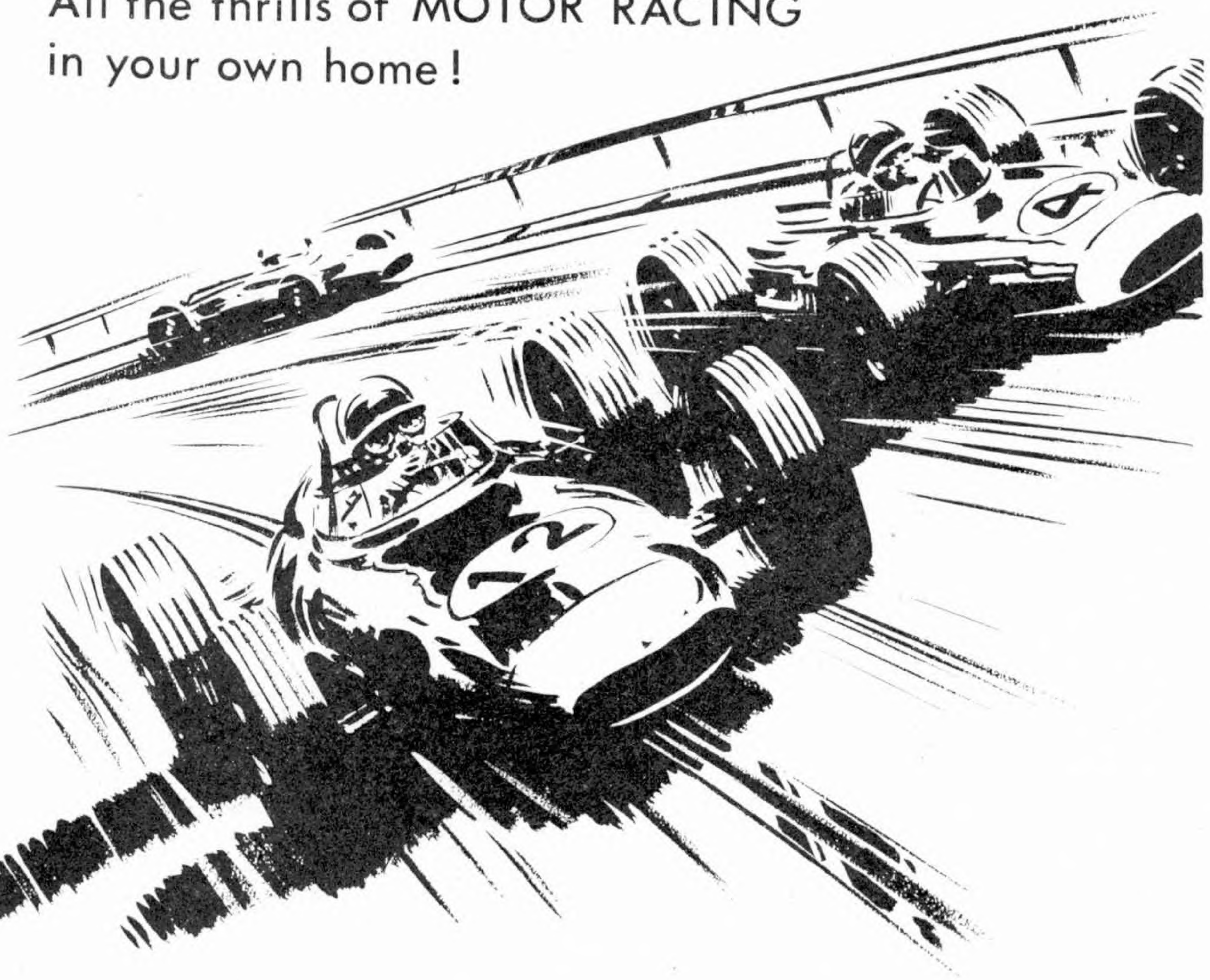
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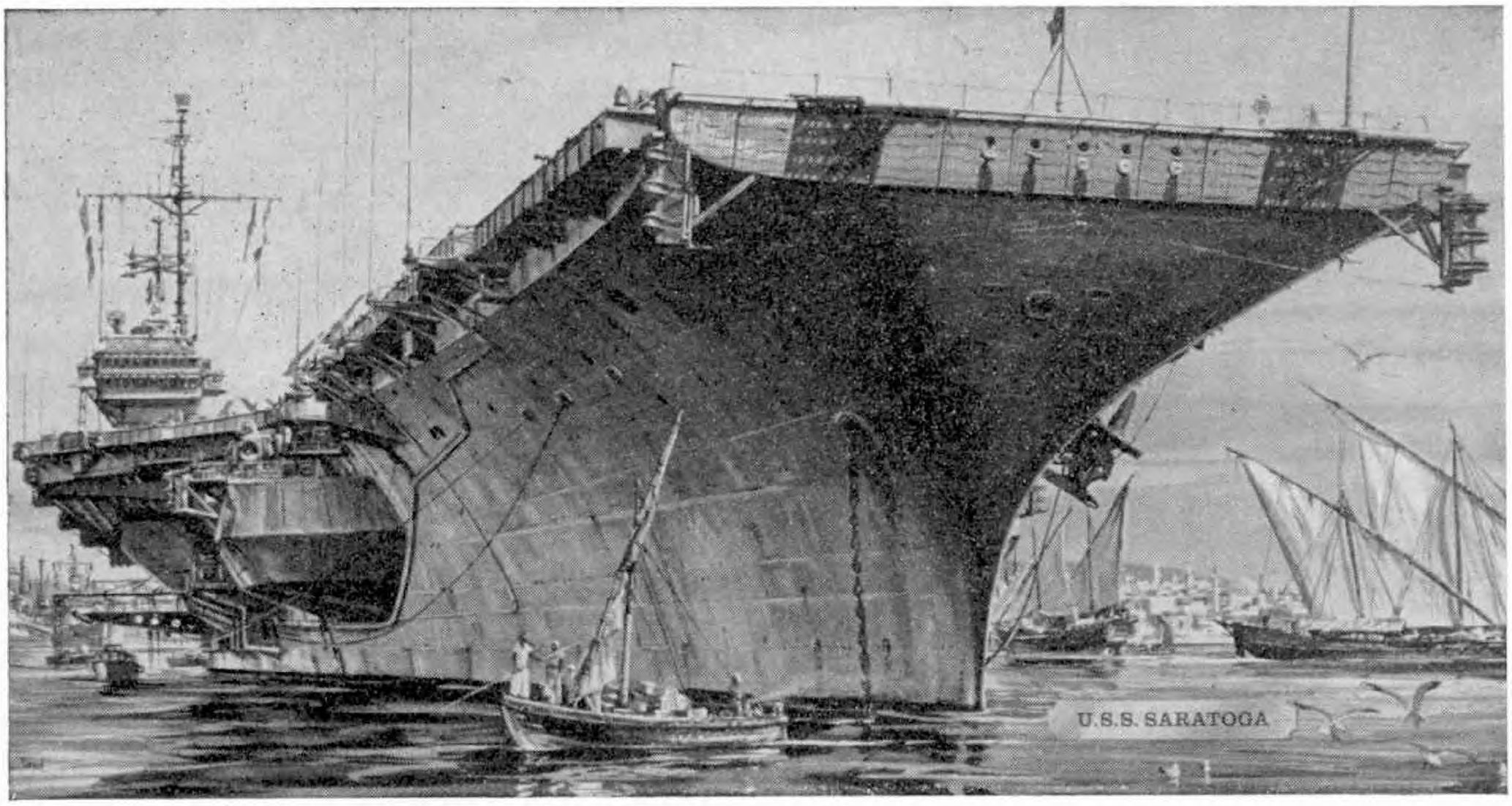
THE STAFF MANAGER

MIDLAND BANK

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G.B. Cycle Components are made by enthusiasts for enthusiasts, and continued participation in all aspects of cycle sport ensures that the G.B. range of brakes, handlebar and stems leads in design and performance. The same components that are used by professional racing cyclists and fitted to Carlton, Viking, Raleigh, Dawes, Elswick, Wearwell and Falcon bicycles, are available to YOU from your local cycle dealer.

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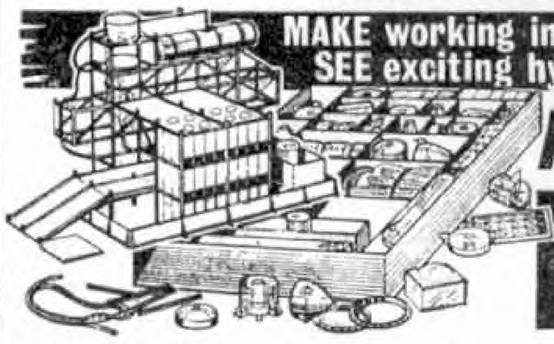
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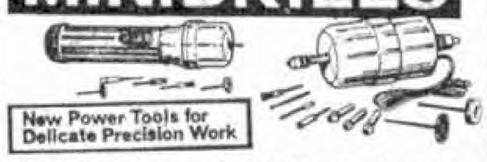
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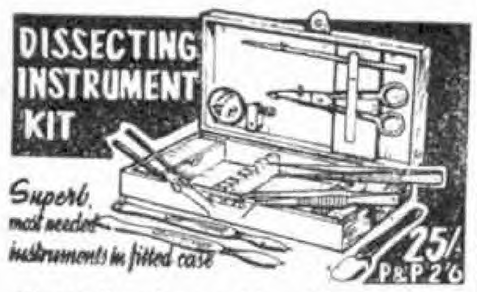
SOLAR ENGINE



Perpetual Power in a bulb! **12/6** P&P 1/6

Actually a Crooke's Radiometer which demonstrates solar power in a fascinating way. Consists of a partially evacuated glass envelope, similar in appearance to an electric lamp, but containing a rotor assembly of 4 diamond shaped vanes coloured black and white on alternate sides. Engine is driven from invisible infra-red rays from the sun, domestic fires or lamps, even a cigarette end; and will rotate at about 3,000 r.p.m. in strong sunlight. Not a toy but an entertaining teaching aid and conversation piece. Size 5" high×3" dia.

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meccano magazine
THE PRACTICAL BOY'S HOBBIES MAGAZINE

July 1965 · Vol. 50 · No. 7 · Monthly

AEROMODELLING □ RADIO □ ELECTRONICS □ CAMPING □ CYCLING □ STAMPS □ FISHING

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Front Cover! Transport of the future? This one-man hovercraft was on display at the New York World Fair and was built by George Barris of Lynwood, California. It rides on a five-inch cushion of air and can run on land or water.



Aeromodelling Special

EACH month in Meccano Magazine, we feature plans and instructions for building a model aeroplane. Most models are extremely simple to make, in order to give beginners to the hobby a chance to understand and become interested in this absorbing pastime.

Next month, for all who are interested in model making, there is a special eight page supplement devoted entirely to model construction, plus details on how to 'skin' a model, dope it and then fly it. Instructions on how to maintain model motors and fly powered aircraft will also be included, in fact, the August issue of Meccano Magazine will be a bumper issue for all readers interested in model building.

Another interesting feature in next month's issue will be about careers in the Royal Navy. This is the first in a series of articles on careers and I am sure you will find them very interesting and informative.

As you can see I am planning some bright, new features for you in forthcoming issues, as well as retaining the more popular of the present articles. FIFTY Dinky Toys *must* be won in each and every issue of the magazine and if you haven't entered this month's competition, do so NOW! You will find it on page 41, together with our readers' enquiry form and easy-to-fill-in classified advertisement form.

If you wish to enter for the competition as well as enquire about products advertised in M.M., then you may send in the two forms in the one envelope for the same postage price of fourpence. By the way, if you have any old model railway equipment, stamp collections or other equipment you wish to sell, advertise in our sales and wants columns. It is reasonably inexpensive and there is bound to be somebody who needs your unwanted spares.

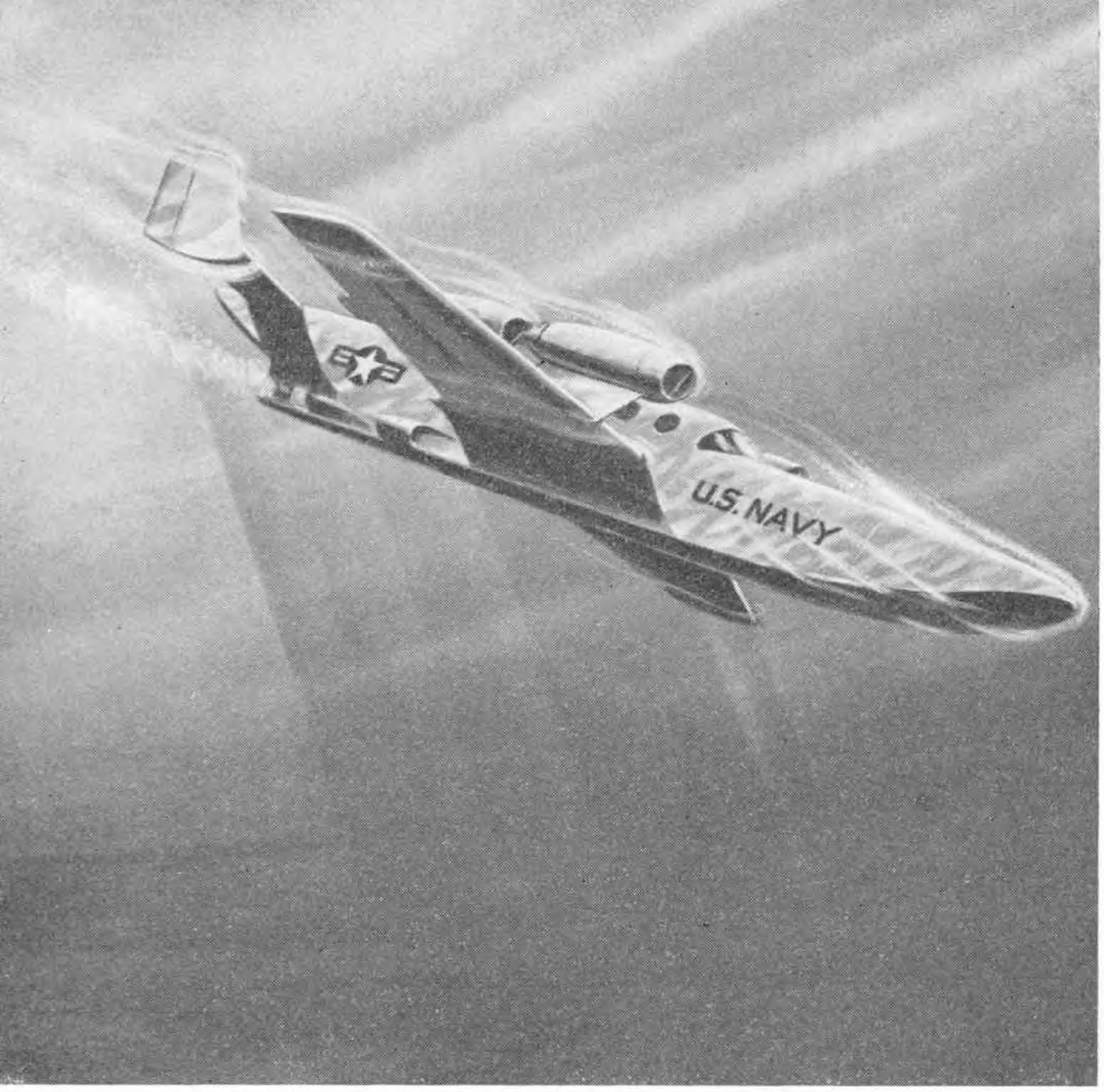
Model Exhibition

Recently, I had the pleasure of a trip to the Duke of Bedford's Estate. Apart from the interest of seeing over Woburn Abbey, the main point of my visit was to see a new model exhibition which has recently opened in the grounds of the Abbey.

Radio controlled aircraft zoomed overhead as I talked to the organiser of the exhibition and learned that the model show is to be open for the rest of the summer season. There is a small entrance fee to see the exhibition, but the display of radio control stunt flying was more than worth the fee paid.

I hope to have more details about the exhibition for next month's magazine, together with some photographs taken of the models on display. If you have a free Saturday or Sunday, why not pay a visit to Woburn Abbey? There are a surprising number of exhibits on display to the public, plus the new model show. I spent the whole day at Woburn and came away without seeing everything I wanted to see and I am sure you will find it as exciting as I did on my first visit.

The Editor



A submersible seaplane design by General Dynamics/Convair of America

Deep beneath the sea . . .
are places still unconque
are developing craft

SUB-PLANES & LUNAR-CRAFT

NEVER in history have designers worked on such exciting aeroplanes as those which are now on the drawing boards in Britain, America and Russia. Aviation has made such tremendous advances in recent years, that nothing seems impossible any longer and science-fiction writers will have to work overtime to think up more fantastic machines than those illustrated on this page.

How many readers of the 'M.M.' imagined that we would ever see a real aircraft that could travel through the air and under the sea, like TV's Supercar? Yet General Dynamics/Convair of San Diego, California, have told the U.S. Navy, after six months of study, that they would be quite capable of building such a craft if it were needed.

The drawing here shows what the Sub-Plane might look like. Basically, it would be a flying-boat, powered by three jet-engines, mounted on pylons above the wings and rear fuselage. All three jets would be used for take-off, but the wing engines would be switched off for cruising flight, enabling the Sub-Plane to fly to a target up to 575 miles away, at speeds between 170 and 260 m.p.h., carrying a 1,500 lb. payload. Near the target, it would alight on the water and the pilot would push a button to close doors at the front and rear of each jet-engine, to keep out the water. He would then flood large ballast tanks, causing the Sub-Plane to sink to a depth of about 75 ft. under the surface, so that it would be able to set out in pursuit of its prey with all the stealth of a submarine. Its underwater range would be 60 miles at a speed of 5 knots, with propulsion by electric motors and batteries.

'Flying Bedsteads' or Lunar Landing Research Vehicles built by Bell Aerosystems



VTOL design by Bell

Another strange new aircraft designed for the U.S. Navy is the Bell X-22A, illustrated here. The idea this time is to combine the speed of a fixed-wing aeroplane with the go-anywhere capability of a helicopter. We should know if it works by the time you read this copy of the 'M.M.', as the X-22A was

far into outer space! Both
red by man. Yet engineers
to beat the problem...

due to make its first flight by mid-1965.

The fuselage of the X-22A is conventional, but it has only tiny stub-wings, one at the front and one at the back and each carrying a propeller inside a barrel-shape duct at each wingtip. For take-off, the ducts are tilted to a horizontal position, enabling the three-blade propellers to work like helicopter rotors, for vertical take-off. At a safe height, the ducted propellers are slowly tilted forward, to give thrust as well as lift.

When the aircraft is flying fast enough for its wings to develop sufficient lift to keep it in the air, the ducts tilt right forward and the propellers then function in a quite normal way. Power to drive them is provided by two pairs of 1,250 h.p. General Electric T58 shaft-turbine engines, mounted at the roots of the rear wing.

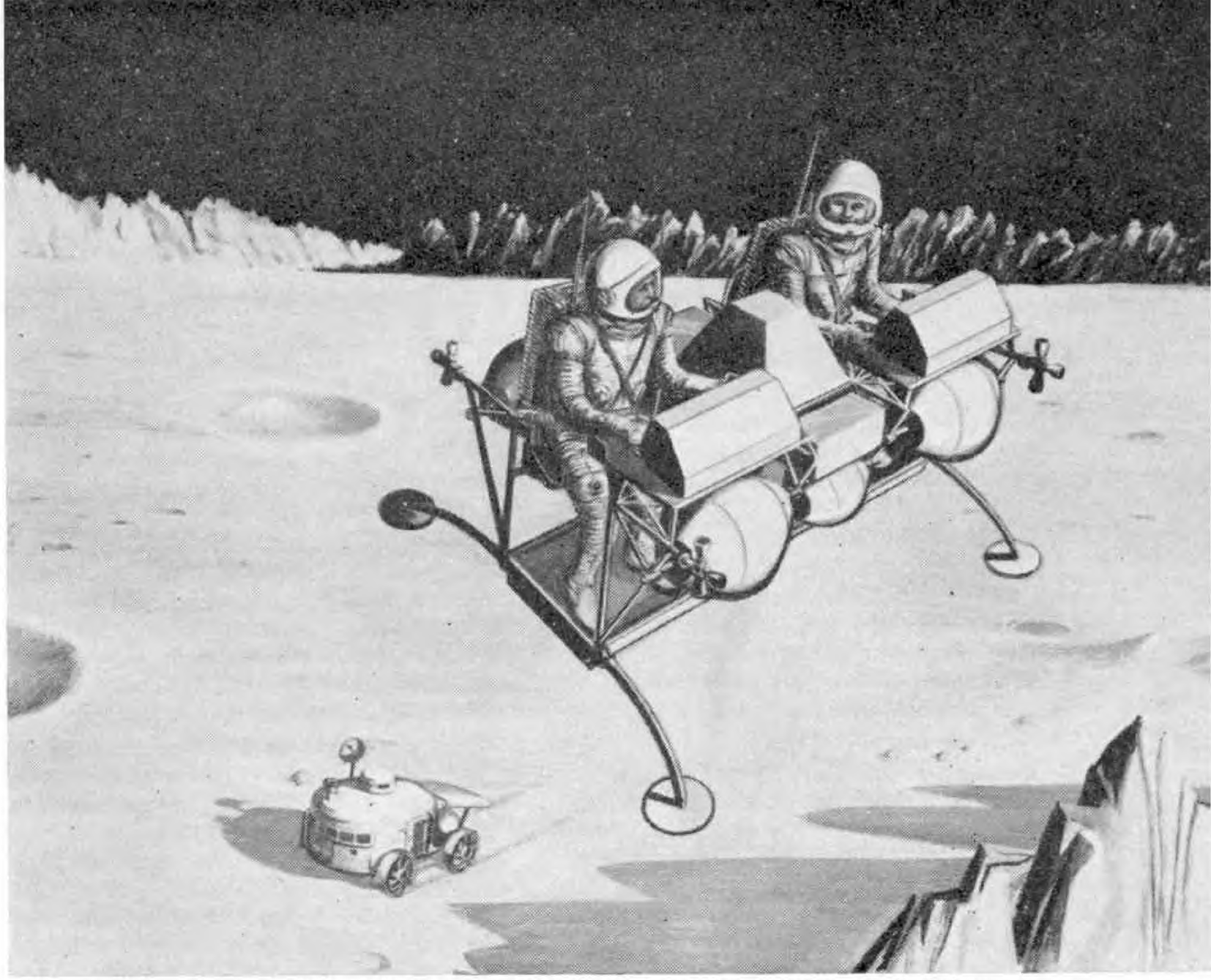
The X-22A is controlled in both vertical and level flight by varying the pitch of the propellers and by means of four elevon control surfaces, one in the slipstream from each duct. This requires no unusual piloting techniques, as the controls are operated by a perfectly normal joystick and rudder pedals, moved in exactly the same way as on a conventional aeroplane.

Two prototypes of the X-22A have been built under a U.S. Navy contract, for testing by all three American Services. They are intended mainly for research, but are capable of carrying a crew of two and either six fully-equipped troops or 1,200 lb. of freight. Top speed is expected to be about 375 m.p.h.

Lunar Craft

Bell Aerosystems Company, who designed and built the two X-22A's, have delivered to America's National Aeronautics and Space Administration a pair of strange jet-powered "flying bedsteads" called Lunar Landing Research Vehicles. By clever use of the vertically-mounted main jet-engine and a number of lift and control rockets, these devices are able to give the effect of reduced gravity, enabling U.S. astronauts to practice landing and take-offs under the sort of conditions they will one day encounter on the moon.

Present plans envisage a first American landing on the moon by about 1970, under Project Apollo. Only one man is expected to set foot on the lunar surface on that occasion; but U.S. scientists are already looking ahead to the time when full-scale exploration of the moon will be possible. So, in this quick look at some of the fantastic 'planes' now being planned in America, we go from one extreme—the under-water Sub-Plane—to the other—a two-man vehicle able to provide smooth, safe travel over the cratered surface of the moon.



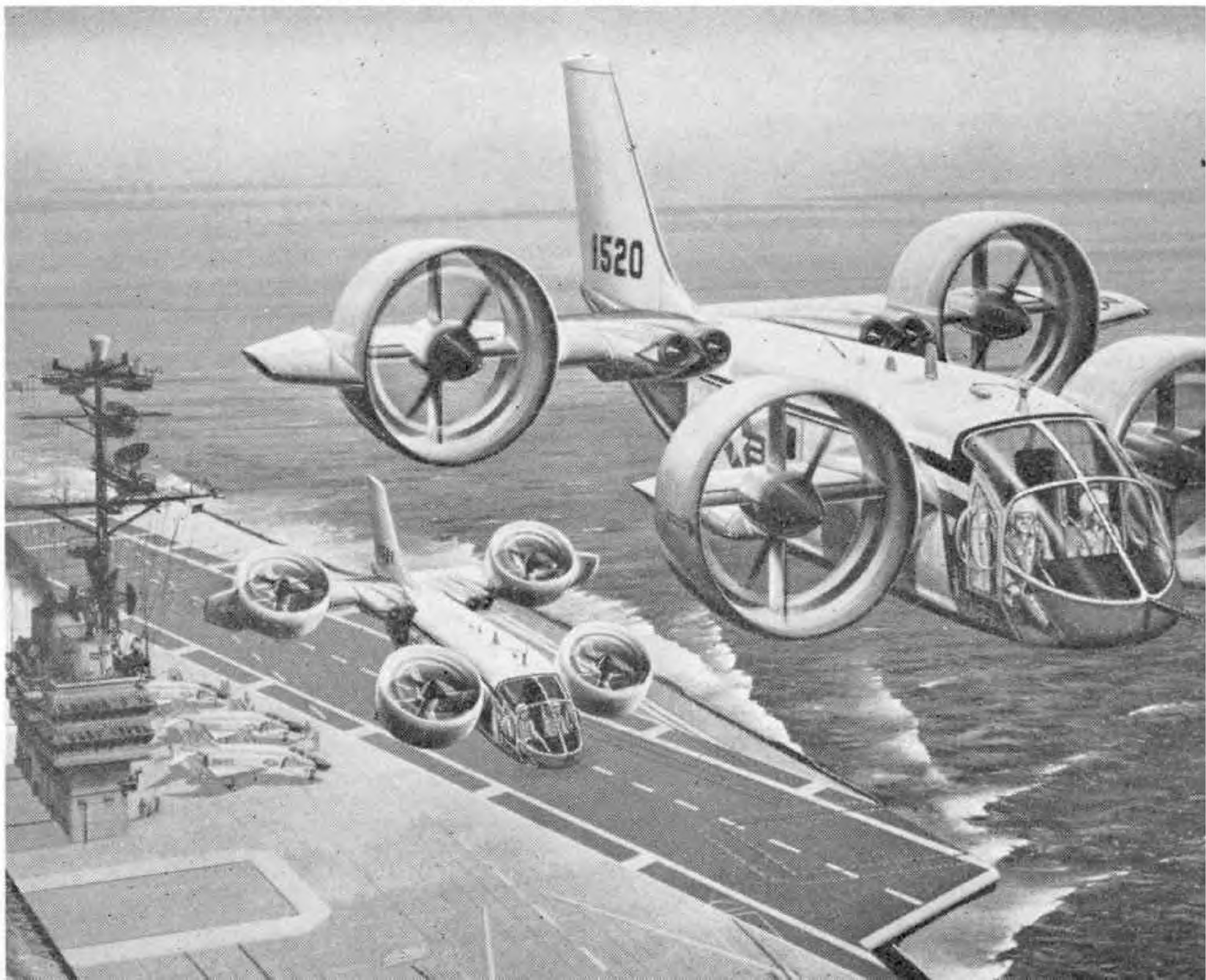
This small Lunar Flying Vehicle will 'fly' by rocket on the moon's surface

Known as the Lunar Flying Vehicle (LFV), the little craft is illustrated above, flying over one of the Mobile Laboratories that will be used to explore the moon. Small rocket motors will provide both lift and thrust, for ranges up to fifty miles.

Not all of the strange craft now taking shape in design offices in America and elsewhere will be built. By the time the first Sub-Planes and LFV's leave the assembly line, they may look very different from the craft shown in our drawings. The only certainty is that aviation will continue to offer excitement and adventure to young men who are courageous enough to face the unknown as pilots and explorers.

John W. R. Taylor

The Bell X-22A designed for vertical take-off and landing. Top speed—375 m.p.h.



by **John Crossman of Angling Times**

LOG YOUR CATCH

ONE of the surest ways in which an angler can improve his fishing is by entering reports of every fishing outing in a diary or log. Experience plays a large part in angling success, for each time an angler goes to the waterside he makes use of, or is influenced by, past results.

Perhaps he has fished his chosen swim before, or at least one something similar. How did he catch fish—or fail to catch them—on that occasion? Memory can prove unreliable, especially when it comes to remembering points of detail. But one seemingly trivial factor concerned with tackle or bait can account for the difference between a good day's sport and a poor one.

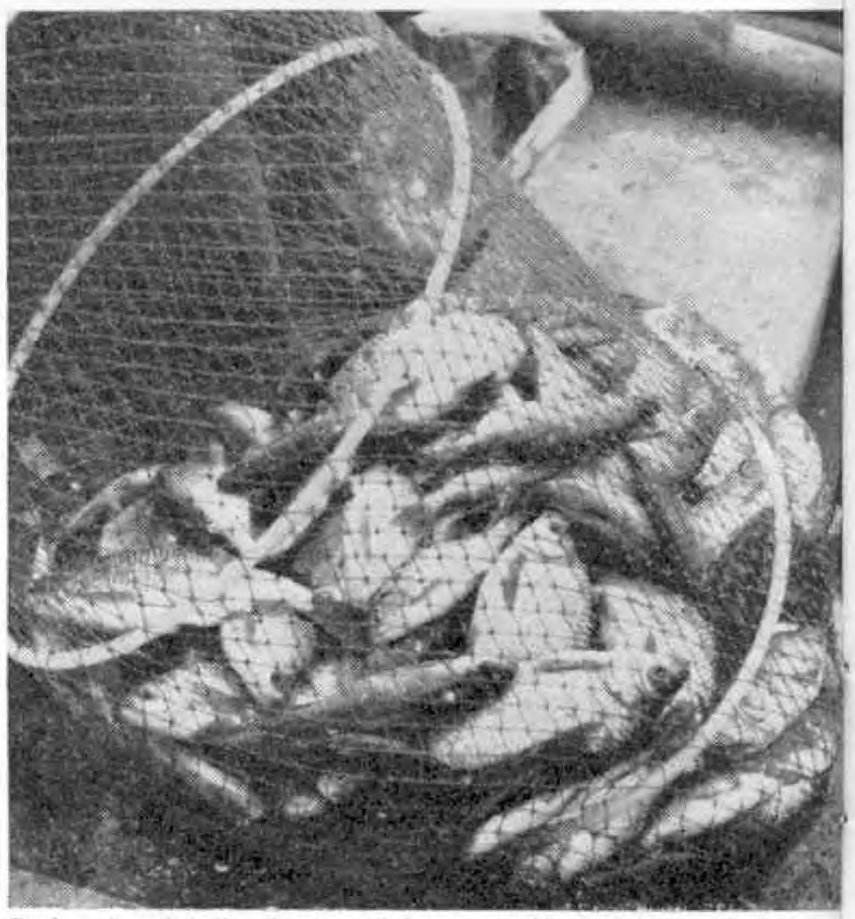
An exercise book of the kind used for school homework makes a useful angler's diary. The everyday pocket diary is too small, for a worthwhile report of a fishing trip can be lengthy, and it may be helpful to supplement the report with sketch maps or diagrams of tackle.

The very act of writing things down helps you to memorise them, but, that apart, reports are valuable in their own right because they cultivate a thoughtful, objective approach to angling problems and also provide specific information relating to the waters you fish.

Bait and tackle used are obvious points to note in your diary, and a report dealing with river fishing should include details of the height and colour of the water, for fish will vary their feeding grounds according to these conditions. For example, I once had a catch of exceptionally fine dace from the upper River Severn on a day when the water had been coloured an unusual light green by a summer flood.

importance of conditions

The fish came from a shallow glide that normally didn't produce dace of that size, but under similar circumstances that swim might yield another outstanding catch.



By logging details of your catch you could repeat the success of this 14 lb. mixed bag of roach and rudd

In still waters, light conditions, depth and weather, are important. The last two points are linked with water temperature and this has a great bearing on the willingness of fish to feed.

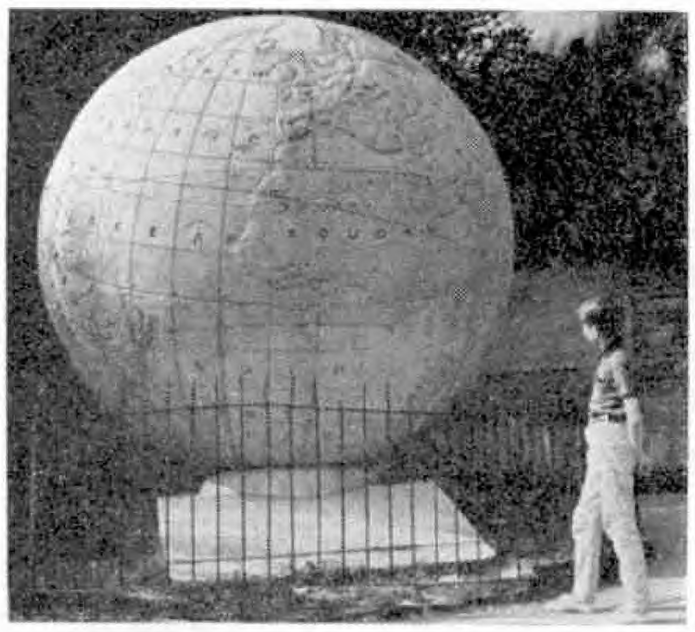
By noting where and how fish have been caught under certain conditions, you will be able to form a shrewd idea of when fish will feed in the shallows, near weeds, or in open water. In short, you will be able to fish to a plan instead of relying on guesswork.



Mailbag

Heard anything interesting? . . . . write about it to the Editor

● **Swanage Globe.** — This huge globe of stone, 10 feet in diameter and weighing 40 tons, stands on the cliff top at Durlston Head near Swanage in Dorset. It was set up by Mr. George Burt about 70 years ago and it is tilted at the correct angle of the Earth's rotation. On the walls around, stone slabs record all kinds of information relating to the sun, earth, moon and stars — in fact, a veritable geography lesson! — *Frank Rodgers, Allestree, Derby.*



● **Garden Memento.** — The photograph below was taken in a London suburban garden in early 1964 and is the paddle-box badge from a very well-known Thames Estuary steamer, *Royal Sovereign* which ran from 1893 to 1929.

The house where it stood was occupied by a man whose lifelong hobby was an interest in pleasure steamers and when *Royal Sovereign* was broken up in Holland in 1930, he managed to purchase the paddlebox badge, the ship's bell, the steam whistle and some items of furniture. In fact, the house forms a small museum, particularly of the Thames pleasure steamers.

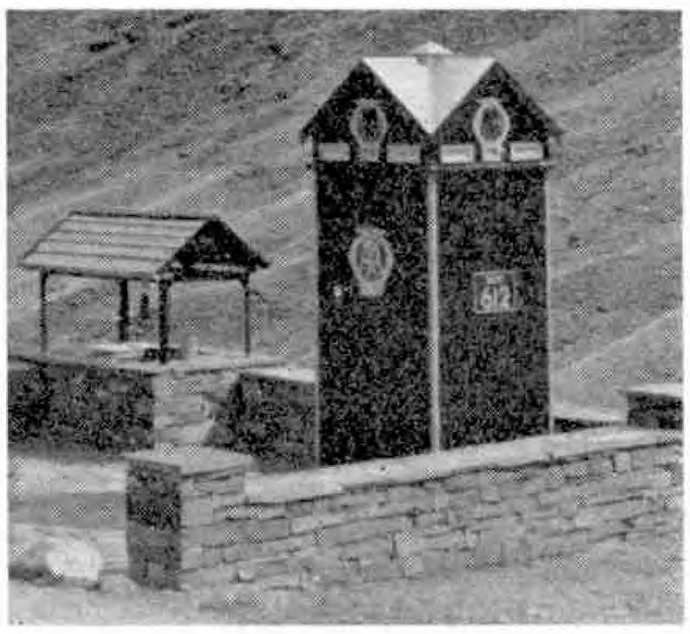


There are scores of photographs of ships and many relics including lifebelts, saloon chairs, a table, dining saloon panels and the complete steering wheel from a competitor of *Royal Sovereign*, the *London Belle*. There is the bell from another ship, *Clacton Belle*, mounted on a hallstand made from ships' timber and a complete pictorial record of a day trip to Margate on board *Royal Sovereign*.

Many of these interesting relics have now been bought on behalf of the Paddle Steamer Preservation Society to be available for exhibitions; the first time they were shown was at Folkestone Public Library in 1964, when the Mayor opened the display by ringing the beautifully polished ship's bell of *Royal Sovereign*.

When the paddlebox badge, now renovated, stood in the garden, it must have been seen by scores of people passing along the roadway, but one wonders how many of them would realise the historic interest of this relief figure of the great Queen Victoria after whom the ship was named. Incidentally, there is still a *Royal Sovereign* running in the Thames Estuary, a 1948 built motor vessel which runs popular daily trips during the summer.—*C. Harrison, Clifton Crescent, Folkestone.*

● **Boiler Point.**—The motorist in the Lake District who has successfully negotiated the acute bends and the gradients—1 in 4 in places—on the road over the Honister Pass (B5289) will often find on arrival at the summit (1,190 feet) that the water level of his car radiator is low owing to overheating. However, in one corner of the enclosure in which stands the A.A. box 612 is an attractive, roofed well.

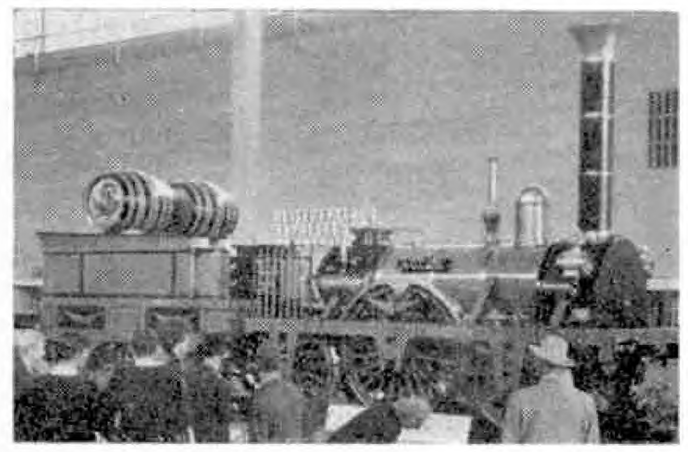


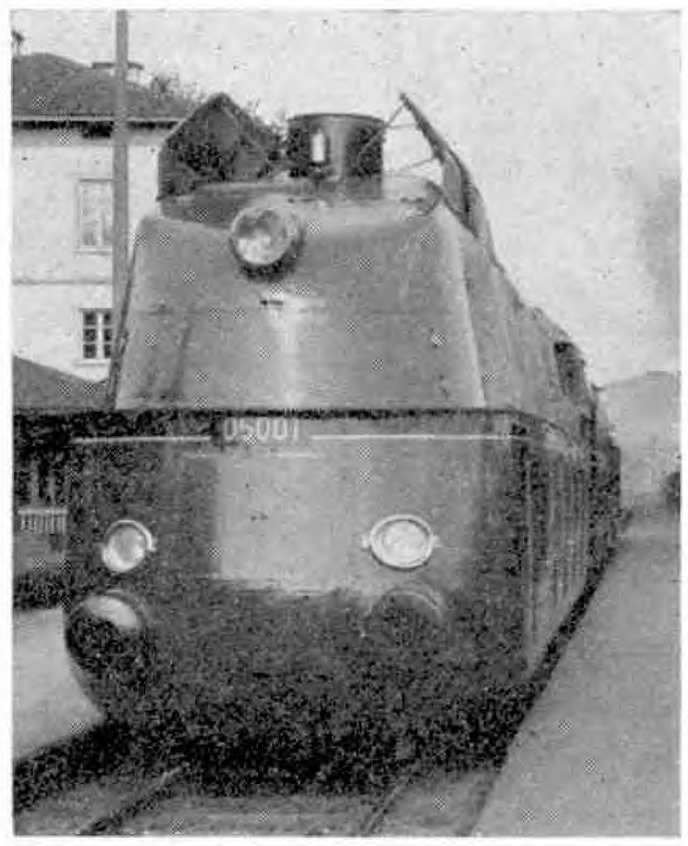
Honister is one of the wettest places in the British Isles and the water supply is no problem. The brickwork of the well is of local stone and the green slate roof is from the local Honister slate quarries. The well tones in pleasingly with the surroundings and is a credit to the motoring organisation concerned.—*L. Gowan, Beech Grove, Whickham.*

● **Model Railway at Matlock.** — The model railway on the Hall Leys Park at Matlock has been running successfully for many years and is very popular with young and old, who come to Matlock in the Summer. The L. and E. Pacific engine which was built as a hobby at Ilkeston fifteen years ago, was bought for £1,000 and is now privately owned by the L. and S. Miniature Railway Company.

The engine has twenty-eight tubes in the boiler, a boiler pressure of 80 lb., and it is coal fired. Colour of the engine, is rich maroon with a gold polished dome. The driver told me that a rent of £250 a year was paid for the concession made by the Matlock Urban District Council. There is a similar model railway at Matlock Bath, in the Derwent Gardens.—*F. Chapple, Port Erin, I.o.M.*

● **Record breaker's last run.**—Recently, in Nurnberg, a record-breaking locomotive made its last run to the 'Verkehrsmuseum' (Traffic Museum) at a speed of 15 miles-an-hour. This was in complete contrast to the record speed of 125 miles-an-hour which the locomotive set up in





1936 on the run between Hamburg and Berlin.

The streamlined 05001 is now placed beside the first locomotive, 'Der Adler' (The Eagle), which can be seen in the photograph above. Der Adler was built in England in 1835 and was bought by Germany for £850.—*Hans Kutschbach, Hannover-Westerfeld.*

Digger grabbed the gun and smashed it hard on to the crook's head . . .



MILLION POUND QUESTION

THE fork-lift truck bellowed angrily as it hoisted a tea-chest sized bale up to the huge cargo hatch of the Bristol Freighter. Inside the aircraft, men sweated dozens of similar bales into place and clamped them tightly into position. Martin Tracey and Digger Ames watched the work from the ground in silent admiration. It was cold on the runway with the chill evening wind whipping straight from the North Sea across the flat Norfolk plains.

'Wish the passengers would hurry up', grumbled Digger, shivering inside his heavy flying coat. Tracey grinned at him. In spite of having lived in England since 1942, the lanky Australian had never become fully accustomed to the climate and any drop in temperature always produced a series of groans and curses.

'Your wish is granted', he replied, indicating a large saloon car approaching the aircraft. Two men climbed out of the car and it whisked away again. The men came across to the flyers and the friends recognised them as the pair that had chartered the Bristol Freighter, a fortnight earlier, to take a cargo of a new and highly secret plasticised paper to France.

The paper, it was said, was to do with a new process for making printed-circuit radio sets, that would enable the factory to print the circuits at an incredibly high speed. If the tests on the samples were successful, it would be the biggest breakthrough in electronics since radar was invented.

The Customs papers and export forms were all in order and the reason for using an out-of-the-way aerodrome for the flight was to maintain top secrecy all along the line. There was, of course, the usual national security to think about and, in addition, normal commercial security. There was no doubt about the commission although it did have a cloak-and-dagger air about it that intrigued Martin Tracey.

Men of gratifyingly few words, the two greeted Tracey and Ames briefly before talking to the foreman of the loading gang. Tracey saw the shorter of the two pass a bulky envelope to the foreman and a few minutes later, the fork-lift truck backed away and the huge doors of the cargo hatch swung shut. The loading gang scrambled out of the aircraft and climbed into the furniture van that had brought the bales to the aerodrome.

Ready for take-off

'If you are ready, Mr. Tracey?' said the short man, indicating the aircraft. The four climbed the short ladder into the Freighter and Digger pulled it up behind them and shut the passenger door. He followed Tracey into the flight office and the pair ran swiftly through the take-off drill. The port engine ground slowly over, coughed, caught and fired with a puff of blue smoke, then the starboard engine did the same.

Tracey eased the throttles open and the ponderous aircraft waddled sedately down the runway and turned into the wind for take-off. The engines were revved up to maximum and the Freighter shuddered against the brakes as the mighty radial engines bellowed away. The aircraft jigged up and down on its wheels for a second or

two and then settled down as Tracey closed the throttles again.

'O.K., Dig?' he queried and, as Digger gave the age-old thumbs up sign, he released the brakes and set off down the runway. The Freighter bumped along the tarmac at an absurdly low speed, considering the uproar from the engines, then the bumping suddenly stopped and the two men experienced the inevitable pulling at their stomachs as the 'plane became airborne. Tracey climbed to 3,000 feet and levelled off.

'Give us a course for Le Touquet,' he grunted. 'We're going to be about an hour in this flying van and . . .' before he could finish the sentence he saw the red warning light over the door flicker on and the flight-deck door open. He stiffened with annoyance, no aircrew likes or even tolerates passengers coming on to the flight deck. The dangers are obvious and he forgot his conversation with Digger in favour of a courteous, but firm, rocket to the intruder. The fact that the man was his employer was beside the point.

It's a hold-up!

But, he never spoke. Both the men had walked through the door and both were carrying revolvers. He felt one man behind him and felt, much more vividly, the muzzle of the revolver pressing gently into the back of his neck. The shorter of the two, obviously the leader, was behind Digger and was holding his pistol into Digger's neck.

'Excuse the sudden interruption of your conversation', he said smoothly, 'but it is only fair that you should know the real purpose of this little trip—especially as we will require your full co-operation.

'The mission as outlined to you was basically correct, but there are two points which need clearing up. The cargo is paper but not quite the type we described, it is in fact paper in the form of five and one-pound notes to the total value of a little over one million pounds. The proceeds of the Bank of England van raid two months ago.

'Our destination is not Le Touquet, but a disused fighter base just north of Nieuport. There are no navigational aids there, I fear, but here are full details of the base and the course you will need to set. All I ask from you, Mr. Tracey, is that you and your companion fly us to this new destination.

'We will land there, the contents of this aircraft will be transferred to a waiting van, the aircraft will be destroyed and we shall all go our separate ways. You will have a long walk to the nearest town and the time that walk will take will allow us plenty of time to vanish. All that I need add is that you will be handsomely rewarded for your help'.

Decision wanted

The man finished talking and waited for Tracey's reply. Martin was thinking like lightning and made no comments for a few seconds. There was no doubt that the two passengers were in deadly earnest and he also had a shrewd suspicion that as soon as the Freighter had landed, he and Digger would be banged over the head and burned with the aircraft. Crooks of this calibre would have no compunctions about murder and they were not the type of people to leave possible key witnesses at large.

'There are at least two things you have forgotten,' he eventually replied. 'One, what if we do not co-operate? And, secondly, remember that we are off the usual air lanes and the French radar will pick us up and investigate long before we reach the coast.'

The crook chuckled. 'Really, Mr. Tracey,' he said chidingly, 'you must give me more credit. Let us deal with your points. First, if you do not co-operate, I shall have no alternative but to shoot your friend through the elbow. It will be unbearably painful and he will be crippled for life in that arm. If you are still stubborn, I shall shoot him through the other elbow. I am sure you would not wish that to happen.

'As far as the French radar is concerned, I am positive that a pilot of your experience and knowledge understands that even in these advanced days, radar will not work at very low altitudes and we can fly under it fairly easily. The sea radar does not operate in this area, so we will not be picked up on the Navy screens.

'Therefore, Mr. Tracey, you really have no alternative but to help us.'

Tracey was silent. The man had obviously spent a great deal of time on making his arrangement and his hair-raising threat to shoot Digger was an impressive one. He shrugged his shoulders slightly and swung the Freighter on to the new course, at the same time losing height until they were only fifty feet above the sea. The sun had gone down and they were flying in the luminous twilight, a hazardous business over water at low altitudes.



Altimeters are not accurate low down and the pilot has to rely entirely on visual observations, which is extremely tricky over the sea, as it is almost impossible to judge the height of the waves. It only needed a slight slip of concentration, an extra-large wave, the aircraft to dip a little and the huge fixed undercarriage would touch. Tracey had no illusions about the results.

Water, at any speed much over 30 miles-an-hour is as hard as concrete and a touch would send the machine cartwheeling over and over until it broke up and sank. It was a nightmarish situation, because the degree of concentration needed to fly was such, that no thought could be spared to work out an escape plan. And even if he could think of something, he could not possibly bring Digger into it. A quick glance showed that the second crook had lowered his revolver so that the muzzle was against Digger's elbow and the man's finger was curled round the trigger . . .

The French coast loomed up and Tracey climbed slightly over the sand dunes, then dipped again over the flat, featureless plains of Northern France. The Freighter droned its leisurely way along, bringing them, minute by minute, to the destination—and death. Still no solution had come to him and Tracey knew that Digger must also be thinking furiously.



'Five minutes to go', said the man behind Tracey. 'Throttle back now, there will be a signal from the ground when they see the navigation lights.'

The words had hardly left his lips when a powerful red light winked from the ground a mile or two ahead.

'Flash your landing lights twice, Mr. Tracey,' said the gunman. 'Then prepare to land when that red light flicks three times.'

Tracey obeyed and at once the recognition signal came back. 'I can't land,' said Tracey, 'I don't know the aerodrome and I don't know the wind direction. We could overshoot the runway and pile up.'

Landing instructions

The gunman sighed. 'As you fly over the landing strip, you will see a form of flare path light up. Then, as you circle, our friends on the ground will fire a Verey light which will give you the wind direction. You will find the facilities are almost as good as those at Le Touquet, without the distraction of English-speaking French air controllers jabbering at you.'

In spite of his peril, Tracey could not help smiling at the last remark. The tendency for foreign air controllers to chatter like monkeys up a tree was well-known to him and, many years earlier, he had bumped an aircraft quite heavily at Le Touquet through paying too much attention to the uproar in his headset.

Bump! A sudden idea surged through his mind. It was a desperate idea, but it could work. For a moment, he had a ridiculous fear that the gunman could perhaps sense his thoughts and he made a huge effort to appear casual.

'Hold tight, I'm banking for a dummy run,' he said and eased the control column over. The Freighter was no fighter and it came round ponderously on a nearly even keel which was just what Tracey wanted. Just enough out-of-vertical movement to make the crooks hold on to a support with one hand, but not enough to excite their suspicions. Sure enough, the man behind Digger had lowered his revolver a little as he braced himself against a bulkhead. Straighten up and start the run-in.

This was the point where Tracey was willing Digger to follow his thoughts and it seemed as though he was getting through. Although he was coming in for landing,

Million Pound Question from page 11

Tracey had made no move to lower the flaps . . .

Slower and slower, any second now the flap-up warning would screech and the element of surprise would be lost. Now! Tracey smashed the throttles wide open and pulled the control column hard back. The astounded Freighter bellowed into a protesting, wing-flapping climb, that sent the crooks crashing to the back of the flght deck in a tangle of arms and legs.

One revolver went off but the bullet tore harmlessly through the roof of the aircraft and Digger, who was supported by his seat, made a dive for the gun.

Tracey had no time for him. The Freighter was on the point of stalling and he pushed the stick hard forward and the crooks rolled forwards. One gunman caught his head a sickening crack against the observer's seat mountings and Digger, who managed to grab the gun, swung it round to smash viciously over the other crook's ear. Then he dragged the two of them behind the seats and joined Martin Tracey.

'Nice going, mate,' he grinned. I never knew these old crates could jump about like that.

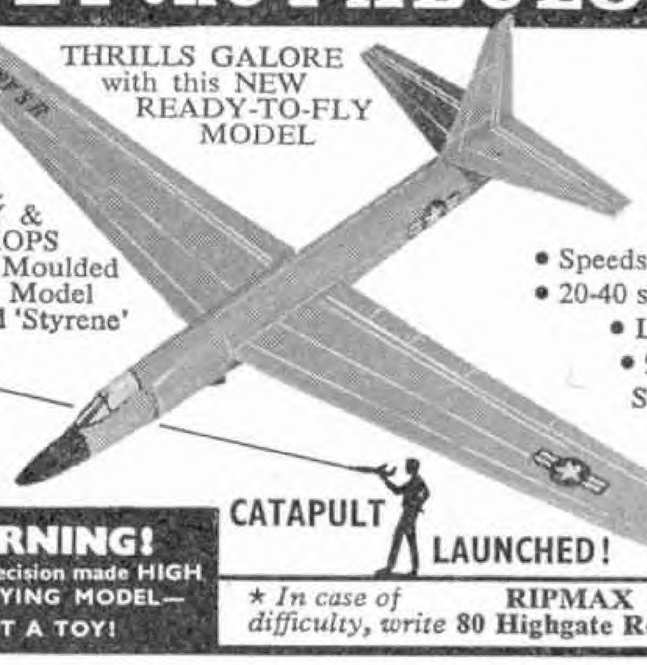
Tracey laughed. 'Nor did I,' he confessed, 'and I bet Bristols don't know either. All we have to do now is get back to Lydd, give these jokers to the police and tell the Bank of England that we've got their million pounds they lost the other day. Hey—I've just remembered. The insurance company will give us a reward for this little lot. We can have a very nice holiday on the proceeds. Where shall we go. Digger?'

Ames cackled happily. 'Tell you what' he replied. 'Let's go on a charter flight to Le Touquet and spend a few bob at the casino. When we've lost all our money, we can have a chat with the air controller at the aerodrome—that's the bloke who made you drop the Anson that time. Remember?'



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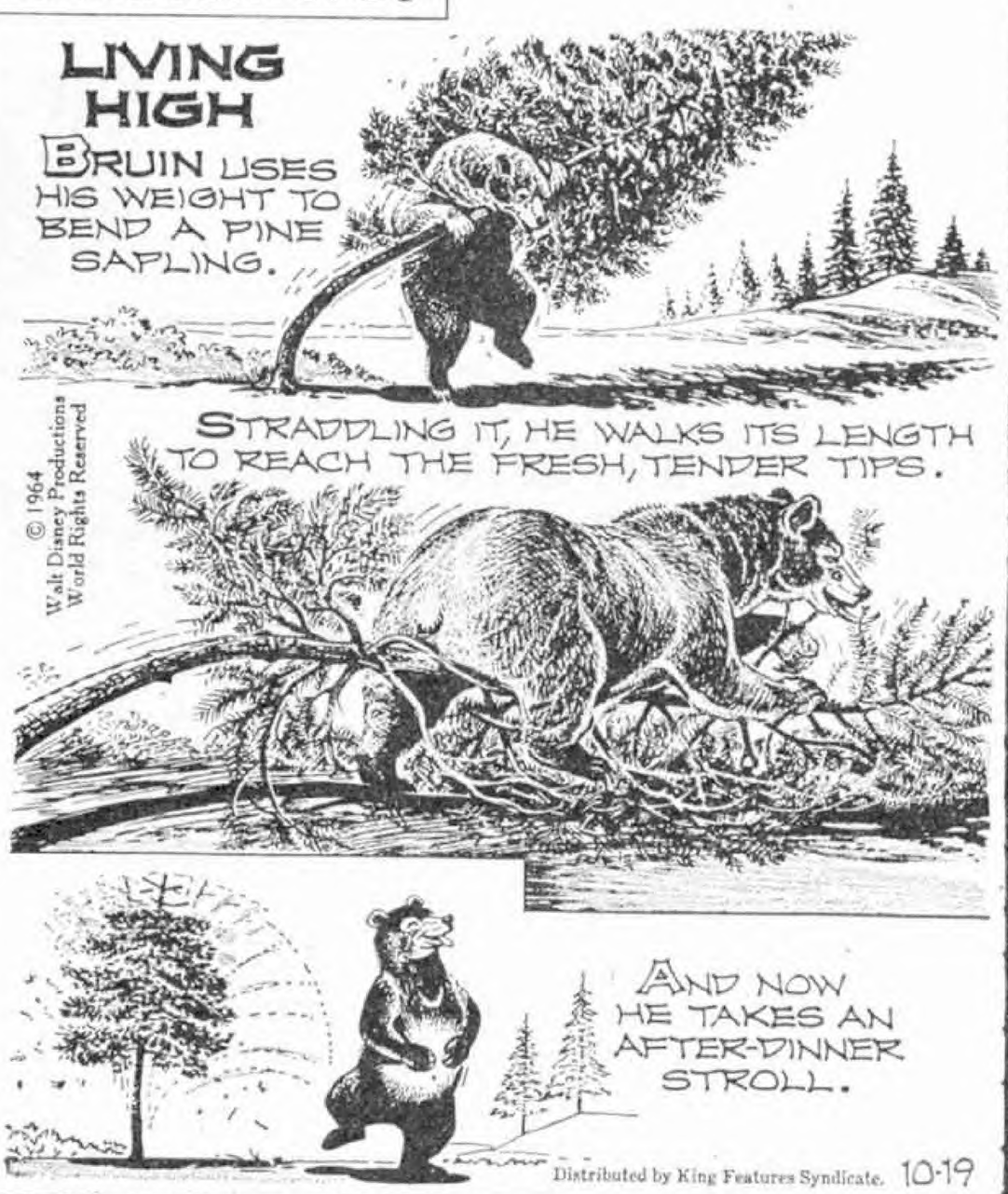
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Legendary ride

Q. Is there any truth in the tale of Dick Turpin's ride to York ?—P. S., Bridlington.
A. Several authorities dismiss it as pure legend and there is no evidence for it in criminal records. Turpin's exploits and his famous steed Black Bess, were mostly figments of the imagination of William Harrison Ainsworth, who glorified the notorious highwayman in his novel, *Rookwood*, published in 1834. The original story of the ride is believed to have been written earlier, however, and it is probable that it was actually accomplished by another highwayman named Nevison who, after staging a robbery in Kent at 4 a.m., appeared in York the same day at 7.45 p.m. in an attempt to establish an alibi. Turpin was executed at York in 1739, for horse-stealing.

Whirlybird

Q. Is there really a bird which can fly backwards ?—'Sunny Jim,' Southall, Middlesex.
A. The Cuban humming-bird—one of the smallest birds in the world—can fly backwards, forwards, sideways, and up and down, just like a helicopter.

Rare car

Q. How many 8-litre Bentley saloon cars were made, and in what years ?—C. H., Billingham-on-Tees.
A. The 8-litre Bentley, which appeared in 1930, represented an outstanding achievement in British automobile design, combining mechanical refinement with luxury and 100 m.p.h. performance. The standard engine developed 220 b.h.p. at 3,500 r.p.m., and the entirely new chassis was available with a 12 ft. or 13 ft. wheelbase. But its debut coincided with an economic slump, and only about 100 8-litre Bentleys were sold in 1930-31. Among these was a much modified car owned by Mr. Forrest Lycett, which had a maximum speed of 140 m.p.h. and could accelerate to 100 m.p.h. in about 18 seconds.

Tall timber

Q. Where is the world's tallest tree ?—'Woodsman,' Christchurch, Hants.
A. Near Redwood Creek in Humboldt County, California. It is a Californian redwood tree, 367 ft. 8 in. high, with a circumference of 44 ft. at the base, and is believed to be well over 1,000 years old. Probably the tallest tree of all time was a Canadian Douglas fir in Lynn Valley, North Vancouver, which stood 417 ft. high and measured 75 ft. round the base when it was felled in 1895. It was estimated to be 1,800 years old.

Oil navy

Q. What year did the British Navy go over to oil fuel ?—David C. Hughes, Silver Spring, Maryland, U.S.A.
A. Coal was used to fuel all British naval vessels until the years immediately preceding World War I. In the early 1900s heavy oil was experimented with and results were so successful that, after 1911, no more coal-burning destroyers were built. In 1912, the first oil-fired battleships and cruisers were put in hand and by the 1930s all but a few minor vessels were burning oil.

Rotor engine

Q. How does the Wankel engine work ?—D. M., Bangor, Caerns.
A. It differs from the conventional motor-car engine in having a piston which revolves in its cylinder instead of moving up and down. This 'rotor' is so designed that every time it turns the mixture is taken in, compressed, fired and expelled three times, in a continuous process. Theoretically, therefore, the output is treble that of the normal single cylinder and valves and springs are dispensed with. Through the centre of the piston is a hole with geared teeth engaging with the drive shaft, which revolves three times to the rotor's one. Invented by Felix Wankel, the engine has been developed by the NSU Motorenwerke concern of West Germany and is now being tested in several countries, including Britain.

Going down

Q. What has happened to the idea of drilling through the Earth's crust ? Has it been abandoned ?—H. O., Hyde, Cheshire.
A. The Mohole Project has been held up by many technical, financial and other difficulties. The last news of it, earlier this year, was that preliminary survey work had been completed and that the site for drilling would probably be near Hawaii or off the Island of Antigua.

All-seeing eye

Q. Can you tell me some novel ways in which closed-circuit TV is being used ?—V. E., Dalston, London.
A. The police are using TV cameras mounted on rooftops to keep observation on particular places where crimes may be committed or where traffic jams may build up. In a Chicago bank, a guard keeps watch on all four floors through eight monitoring screens. In big stores, it can show lift operators the floors on which most customers are waiting for service. It is also being installed in garages to keep tab on vacant space. Flat-dwellers in New York use it to get a view of the person who is ringing their doorbell in the lobby and at the Royal Festival Hall in London, late-comers for concerts may see and hear the orchestra from the foyer while waiting for a chance to take their seats. (*See picture*).

Do you know?

Q. Can you tell me where I can obtain plans and instructions for making a pair of skis ?—David Ross, Ferryhill, Aberdeen.
A. I have searched in vain. If any reader can help, I shall be glad to pass on the information.

No. for number

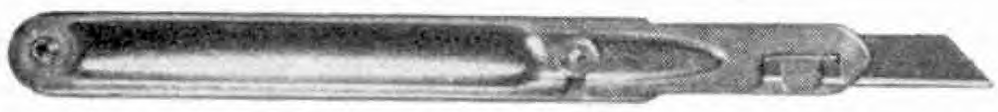
Q. How did No. come to be an abbreviation for Number ?—G. L., Portslade, Sussex.
A. It is short for the Latin word *numero*, meaning 'in number,' and has been in use since the 16th century.



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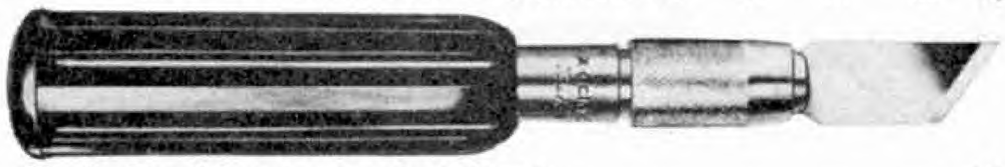
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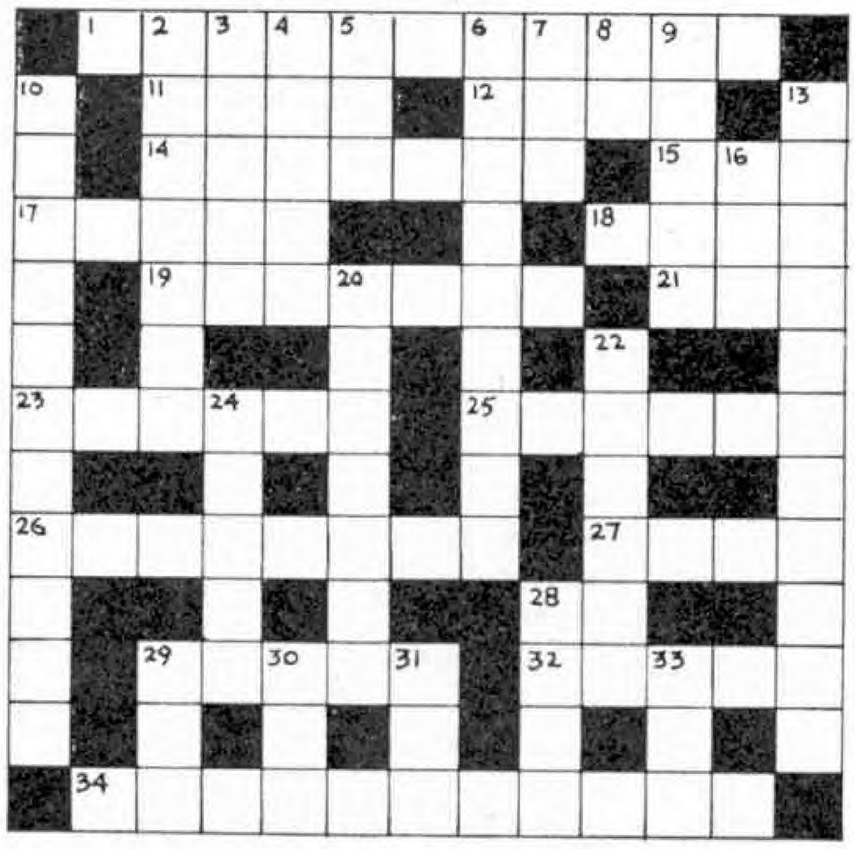
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Puzzle Page

Turn to page 23 for answers to the puzzles on this page

Crossword Puzzle No. 7



Across

1 Values Highly
11 Genuine
12 Tumult
14 Used for porridge
15 Personal pronoun
17 Relative
18 At this place
19 Perfume base
21 Colour
23 Part of Yorks
25 Commanded
26 To imitate
27 Tropical hat
28 Like
29 Despatches
32 Test
34 Very large

Down

2 Go forward
3 Bell rings
4 House-owners pay them
5 Tree
6 Hot-tempered
7 Be ill
8 Preposition
9 Rarefied atmosphere
10 Nice to walk in
13 Letters of recommendation
16 Before
20 Country
22 Prepares work for publication
24 Accustom
28 Let it stand
29 Spanish sun
30 Short sleep
31 Ocean
33 Boy's name

TRICKY TEASERS

The cinema manager was desperate. 'We were charging 1s. 6d. and yesterday we only filled a third of the place,' he said to the girl in the box office. 'Tomorrow, we'll charge only 9d.'

The next day, much to the manager's satisfaction, the cinema was full and £30 more was taken at the box office. Now, can you work out how many seats there were in the cinema?

● ● ● ●

Try this word-changing game. You have to change one word into another by altering one letter at a time, forming a new word at each step, until the required word is reached. For example, this is the way TREE can be turned into LEAF—

'TREE—FREE—FRET—FEET—FEAT—LEAT—LEAF.'

Now you alter BELL into RING with a similar number of intermediate words—namely five.

● ● ● ●

Here's an easy one—if you are a quick thinker. Which capital letter in the alphabet will make another letter when turned on one side?

● ● ● ●

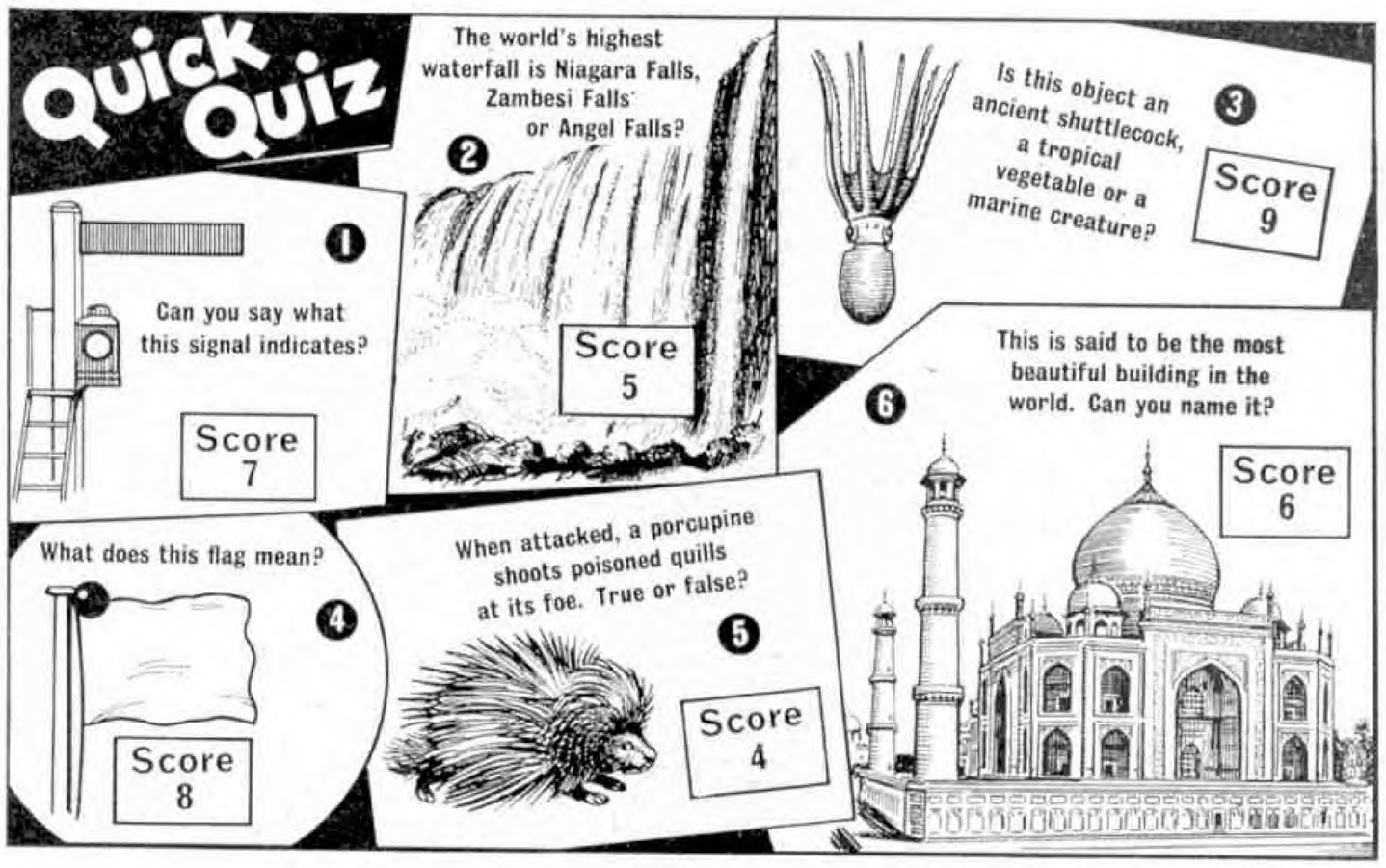
Below, is a well-known saying—but you won't be able to see exactly what it is until the dots are correctly replaced by letters and the words duly spaced out.

ON..OO..UR..ES..VE..NO..ER

Car Quiz No. 8

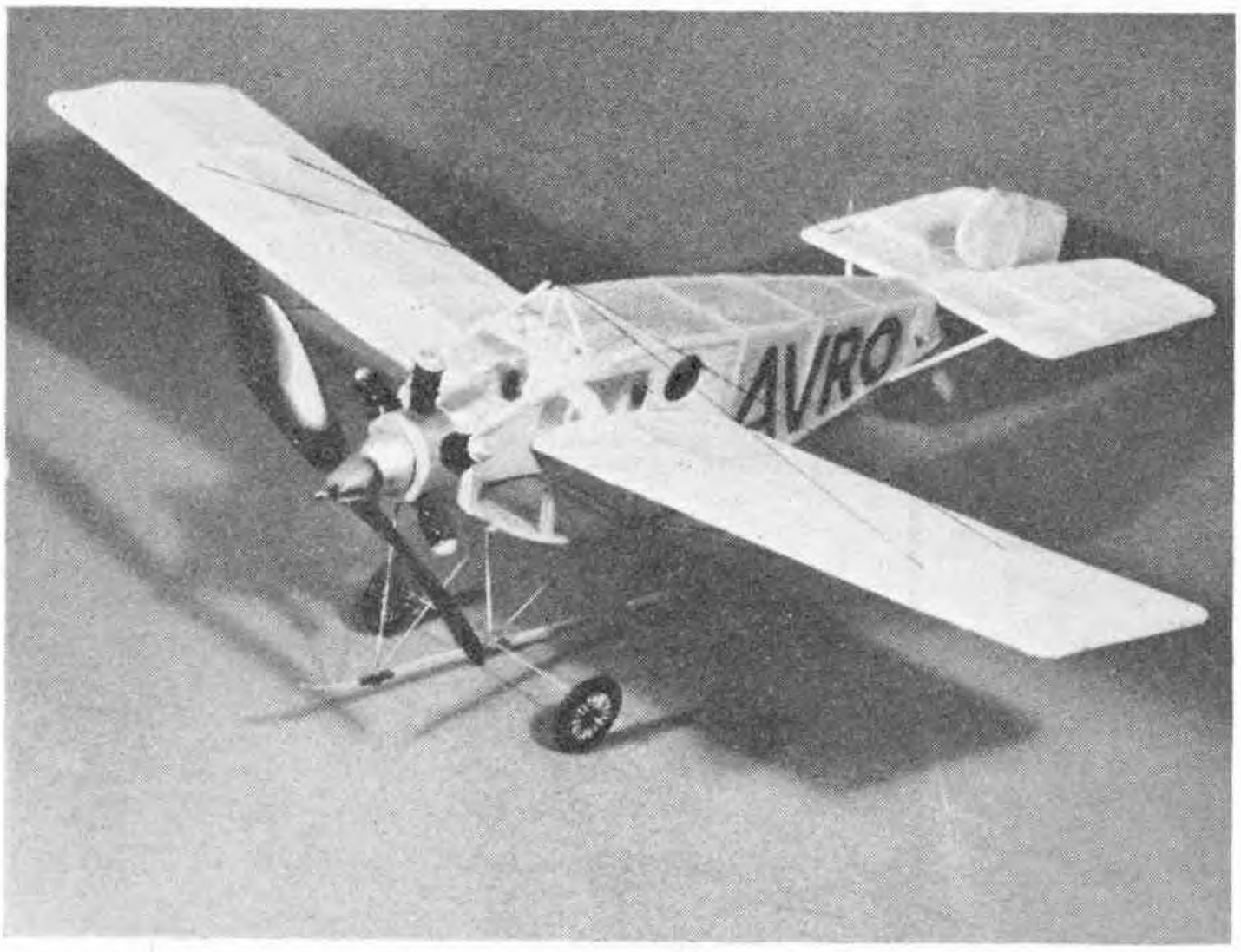
This luxury saloon car is built by a British company that has had numerous wins in the famous Le Mans 24-hour motor race. What is the name and model of this car?



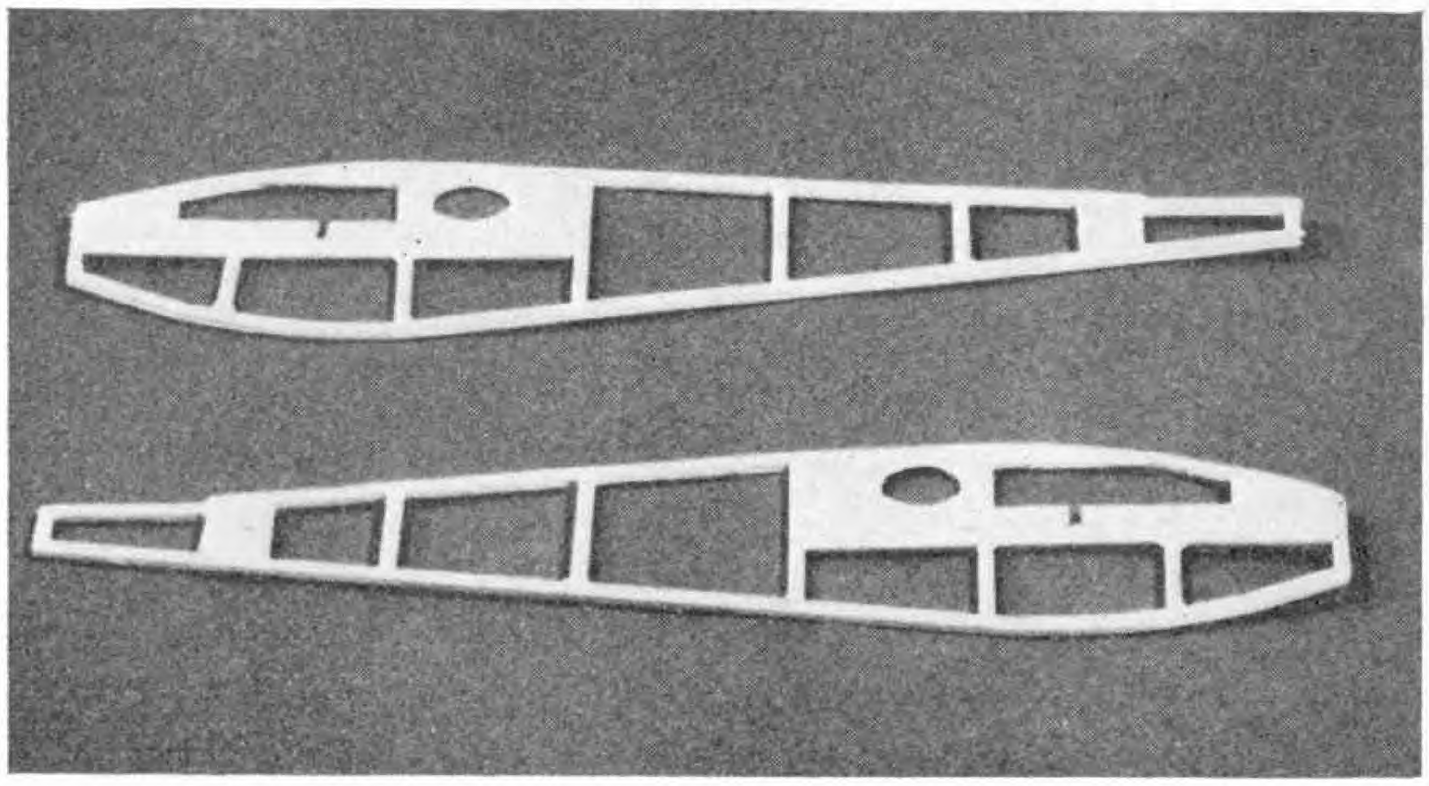


THE AVRO·F

Build this first-ever cabin aeroplane exclusively modelled for Meccano Magazine by Ray Malmström



(Above) The completed model of the Avro 'F' ready to fly. (Below) The two fuselage sides are identical and therefore can be built at the same time for identical size and shape.



ALL of us owe a great deal to those gallant men who started out, over half a century ago, to conquer the air. The model we are presenting this month is a scade model of the Avro 'F', which first flew in 1912 and was designed by A. V. Roe. Its span was 29 feet, length 23 feet, loaded weight 800 pounds, and it was powered by a 40 h.p. five-cylinder 'Viale' engine. Also, it was the first cabin-type aeroplane in the world. Our model Avro 'F' does require a little skill and care to build, but it flies well and will capture for you some of the excitement and suspense of those early days of flying.

The stages for building the Avro 'F' are shown in the 'easi-build' sketches, so we are confining these instructions to advice on the trickier stages and to notes on test-flying your model.

When adding the sheet cabin sides to the fuselage side frames, make sure the outline of the wing rib is accurately drawn on the cabin sides. This outline will assist you when you assemble the wings to the fuselage and to line up the wings at the correct incidence angle.

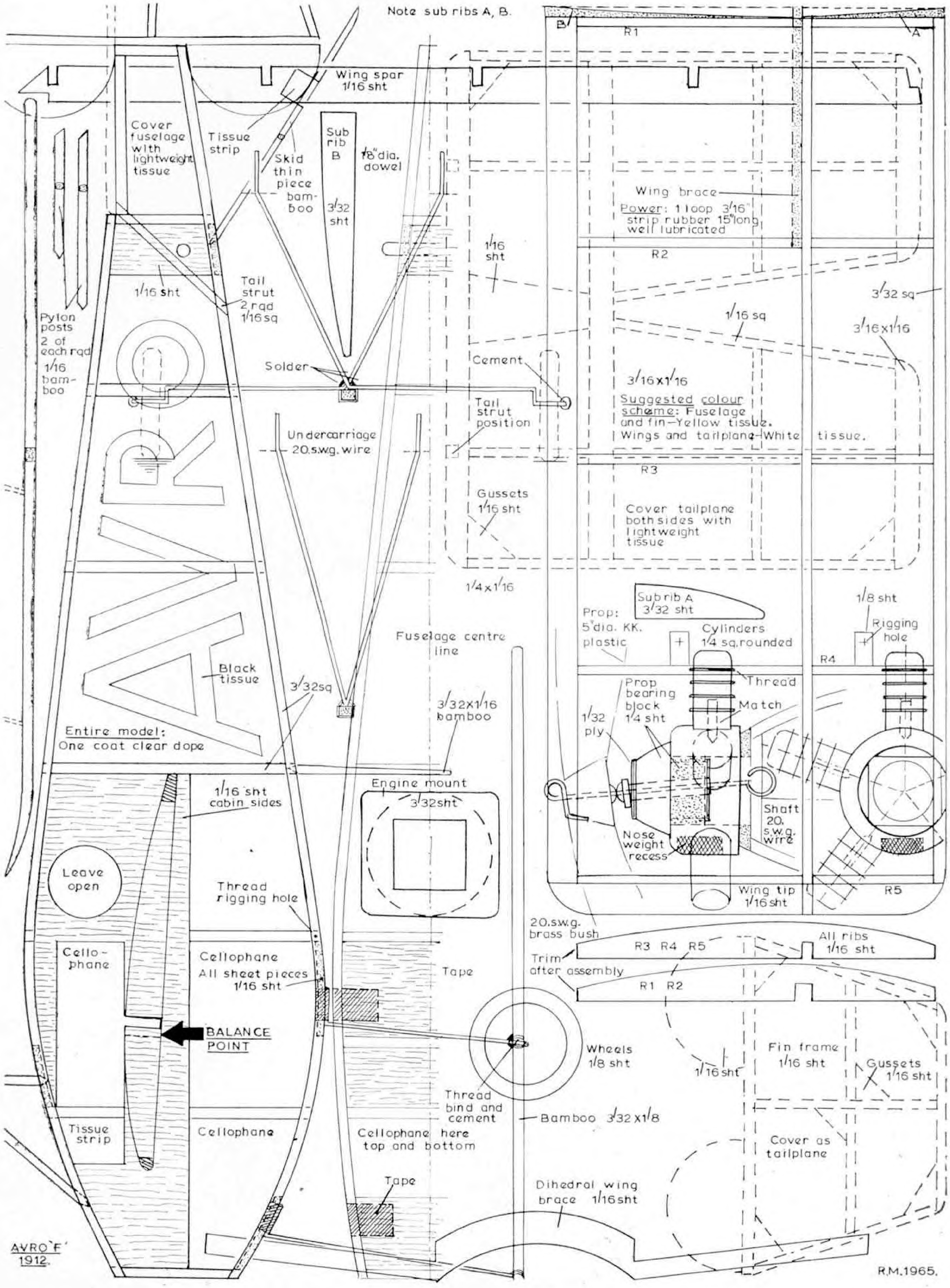
Cover the fuselage and fill in the cabin windows with thin cellophane. Use lightweight tissue for covering, water shrink and give one coat of clear dope. Do this before cementing the tailplane, fin and wings in place.

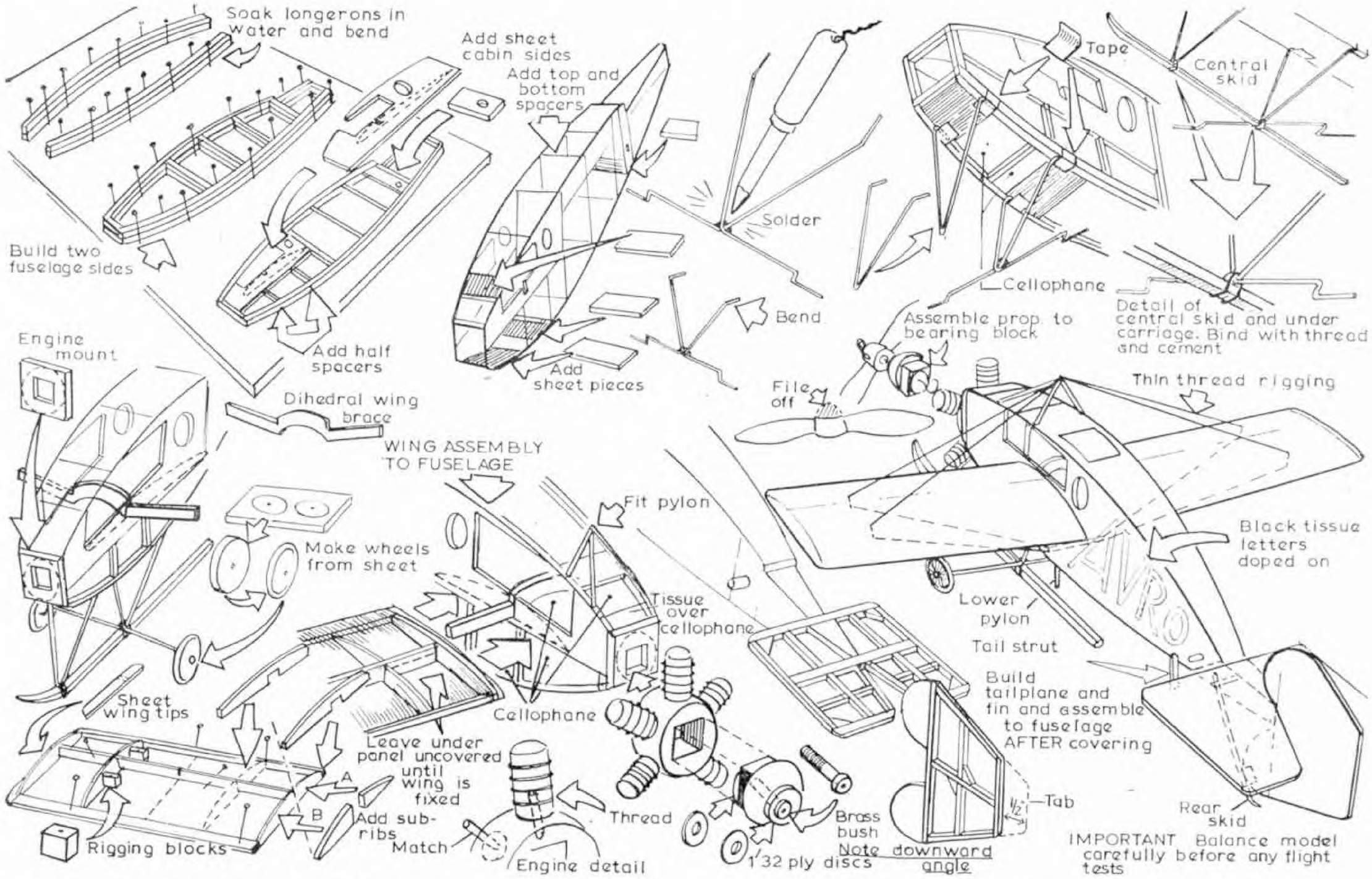
Before binding the bamboo central skid to the two undercarriage 'V's, moisten the front ¾ inch and bend up gently. Around the thread binding rub a coating of balsa cement. Build the two wing panels as shown. You will need a tracing for the port wing panel. When covering, leave the inner underside panel open. This will help you to make an accurate union between the wing main-spar and the wing dihedral brace.

The correct dihedral

After the wings have been assembled to the fuselage, check that there is an equal amount of dihedral under each wing tip. The inner underside wing panels may now be covered, shrunk and doped. The wing bracings, so characteristic of these early aircraft, may be omitted if desired, but the original model has made dozens of flights without damage to the thread bracing and there is no doubt that the bracings add much to the 'old timer' look of your Avro 'F'.

Note that the 5 inch diameter K.K. plastic propeller has the cone of the spinner filed off. Very few early aircraft had the refinement of a spinner over the hub of the propeller. By the way, a 5 inch diameter balsa propeller fitted with a free wheel clutch, would increase the duration of flight. One important point, check your construction frequently, using a set square. Also, use coloured tissue on your Avro 'F', not coloured dope, as this adds too much to the finished weight of the model. The engine should have the crankcase painted silver, the cylinders black and the cylinder heads silver.


Note sub ribs A, B.
Wing spar 1/16 sht
Cover fuselage with lightweight tissue
Tissue strip
Skid thin piece bamboo
Sub rib B
1/8" dia. dowel
3/32 sht
1/16 sht
Tail strut 2 rqd 1/16 sq
Pylon posts 2 of each rqd 1/16 bamboo
Solder
Undercarriage 20.s.w.g. wire
Cement
Tail strut position
Gussets 1/16 sht
1/4 x 1/16
Fuselage centre line
Black tissue
3/32 sq
3/32 x 1/16 bamboo
Entire model: One coat clear dope
Engine mount 3/32 sht
1/16 sht cabin sides
Leave open
Thread rigging hole
Cello-phane
Cellophane All sheet pieces 1/16 sht
BALANCE POINT
Tissue strip
Cellophane
Cellophane here top and bottom
Tape
Thread bind and cement
Wheels 1/8 sht
Bamboo 3/32 x 1/8
Dihedral wing brace 1/16 sht
Wing brace
Power: 1 loop 3/16" strip rubber 15" long well lubricated
R1
R2
R3
R4
R5
3/32 sq
1/16 sq
3/16 x 1/16
Suggested colour scheme: Fuselage and fin—Yellow tissue. Wings and tailplane—White tissue.
Cover tailplane both sides with lightweight tissue
Sub rib A 3/32 sht
Prop: 5" dia. KK. plastic
Cylinders 1/4 sq. rounded
Thread
Prop bearing block 1/4 sht
Match
1/32 ply
Shaft 20. s.w.g. wire
Nose weight recess
Wing tip 1/16 sht
1/8 sht
Rigging hole
20.s.w.g. brass bush
Trim after assembly
All ribs 1/16 sht
Fin frame 1/16 sht
Gussets 1/16 sht
Cover as tailplane
AVRO 'F' 1912.
R.M.1965.



Your Avro 'F' will need a little noseweight and small pieces of sheet lead or folded cement tube, should be cemented into the noseweight recess shown on the plan. The rubber motor is a loop 15 inches long of $\frac{3}{16}$ inch wide strip rubber. This should be well-lubricated with rubber lubricant before being installed in the fuselage. Balance your model carefully and choose a calm day and long grass for flight-testing your Avro 'F'.

Glide the model adding or removing noseweight until you get a straight glide. For the first powered flight, wind the motor about 150 turns and launch the model gently into the wind. Avoid throwing the model.

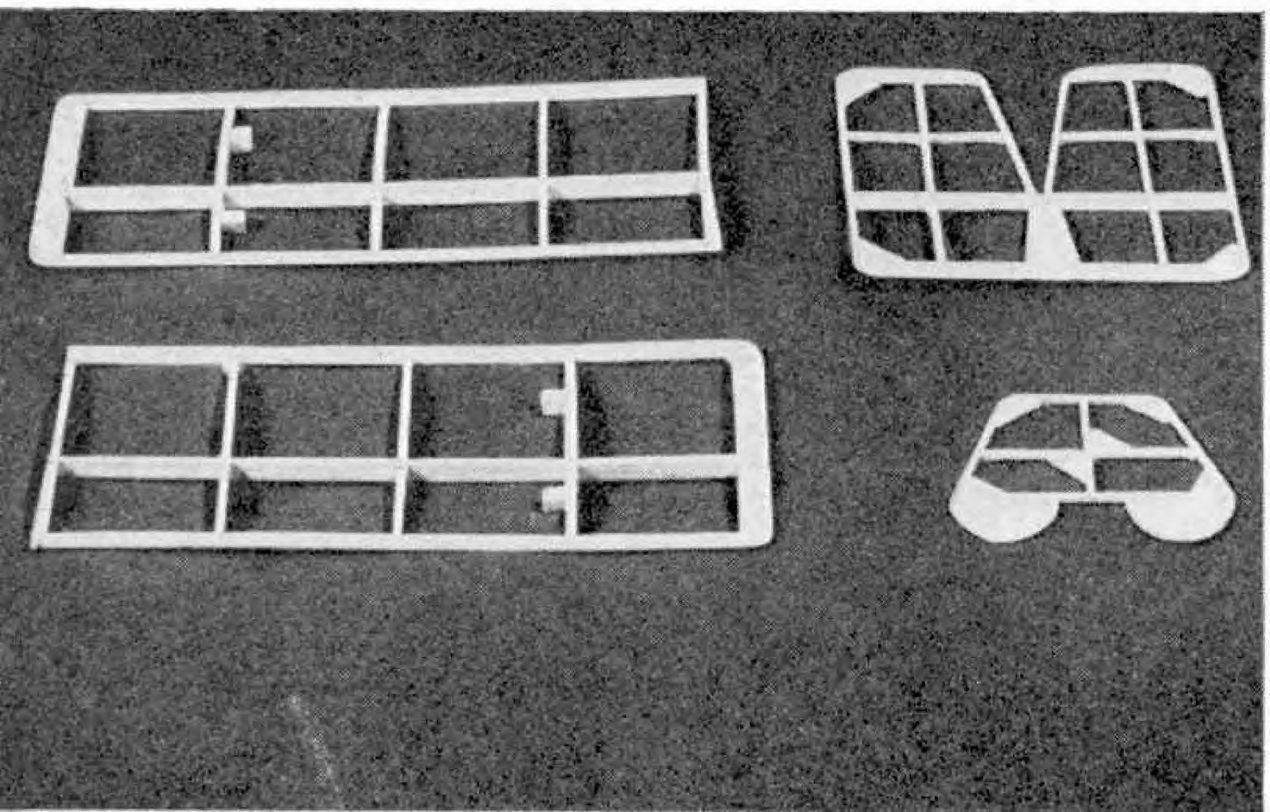
Our original model flew best turning gently to the left as it climbed. To achieve this, a small $\frac{1}{16}$ inch square piece of balsa is cemented on the right-hand side of the engine, model viewed from rear, between the front of the crankcase and the removable bearing block.

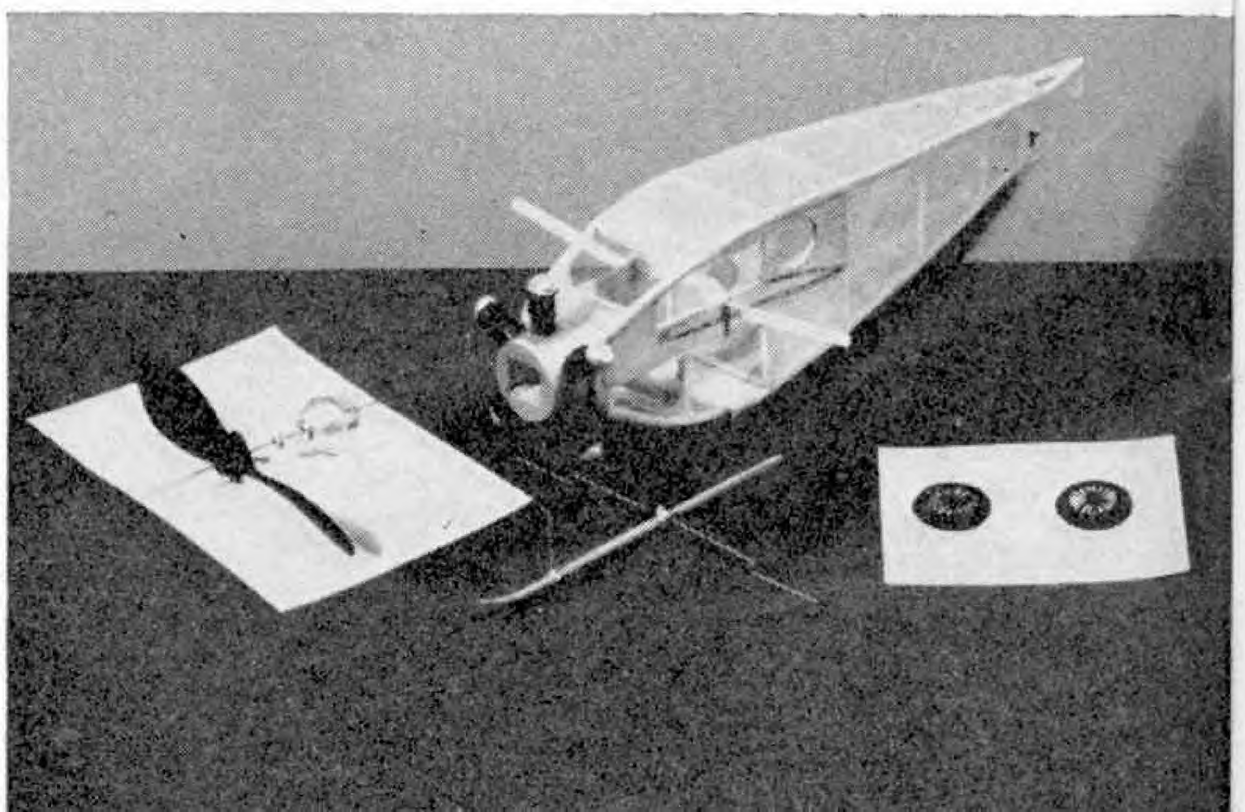
A small trim tab made of stiff paper, may be added to the fin for fine adjustments, without spoiling the model's scale appearance. Maximum turns on the lubricated motor are about 650. Finally, do wait for a calm day for flying your Avro 'F'. Remember, the full-size original, back in 1912, couldn't fly in a gale! On a calm day, the steady realistic flying of your model will amply reward your patience.

List of Materials

6 Strips $\frac{3}{32}$ in. by $\frac{3}{32}$ in. by 36 in. balsawood.
1 Sheet $\frac{1}{16}$ in. by 3 in. by 36 in. balsawood.
1 Sheet $\frac{1}{4}$ in by 3 in. by 6 in. balsawood.
1 small piece of $\frac{1}{8}$ in. sheet balsawood.
1 length $\frac{1}{8}$ in. by $\frac{1}{8}$ in. by 12 in. bamboo or cane.
1 small piece of $\frac{1}{32}$ in. plywood.
1 short length $\frac{1}{8}$ in. diameter dowel rod.
1 36 in. length 20 s.w.g. piano wire
1 20 s.w.g. brass bush.
2 20 s.w.g. cup washers.
1 K.K. 5 in. diameter plastic propeller.
2 yards thin thread.
12 in. linen tape $\frac{1}{2}$ in. wide.
1 sheet lightweight tissue (white)
1 sheet lightweight tissue (yellow or brown).
1 small piece of black tissue.
1 sheet 6 in. by 6 in. thin cellophane.
1 length 30 in. by $\frac{3}{16}$ in strip rubber
Strip of cored solder.
1 tube balsa cement.
1 small bottle of clear dope.
1 tube of rubber lubricant.

(Left) Wing Panels, tailplane and fin frames. (Right) Fuselage assembled and awaiting the fittings of wings, etc.





CHOOSING A KIT

Going touring on a bike? Make sure you take a good toolkit with you for roadside repairs . . .

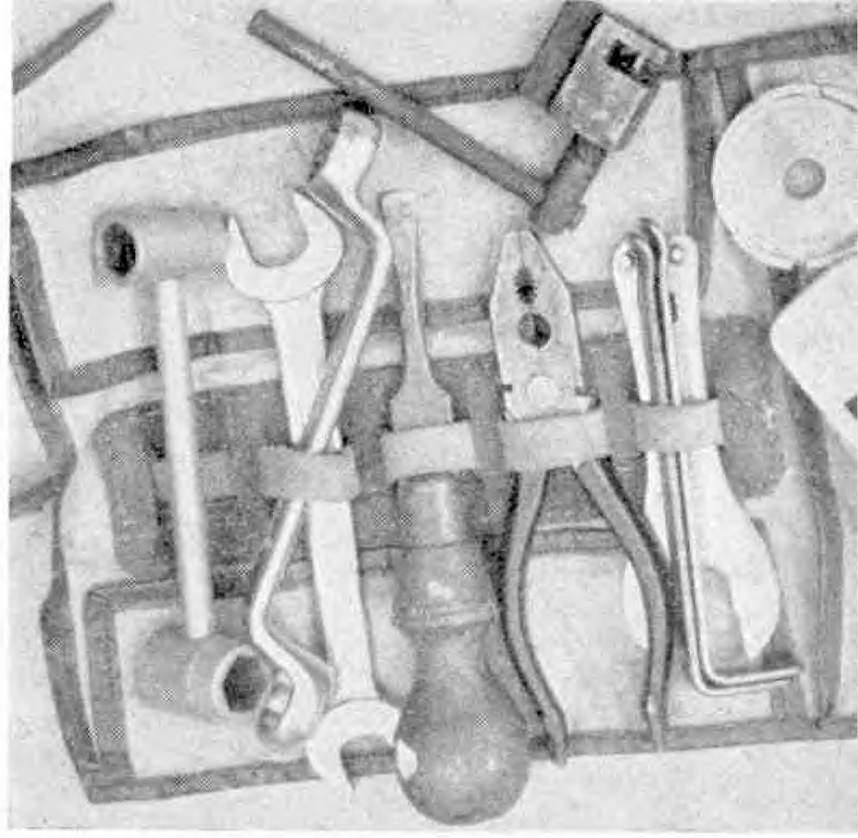


Fig. 1. A complete toolkit for the cyclist who wishes to be sure of fixing all but the major faults on his bike

PUSHING your bike is no fun at all and having to carry it is even less amusing! Yet these two horrible possibilities are what you face if you travel without a toolkit. However, a toolkit does not mean a great plumber's holdall loaded up with hammers and wrenches. The photograph (right) gives you some idea of the essential items and with a small kit like this, you can carry out any slight adjustments or repairs which may become necessary and still get home in time for tea.

For ordinary round the houses riding, perhaps even this kit is a little large. All you would probably need is a puncture outfit, a couple of tyre levers, a box spanner and a screwdriver. You'd be surprised what you can do with this sort of outfit—provided the spanners are the right ones for your particular machine. You can deal happily with most of the minor mishaps which occur—punctures, buckled mudguard, displaced chain, a loose nut or something similar and if you do have to walk home, it's not serious when the distance is only a mile or so. At least you won't have to carry your machine because the rear spindle nut has shifted and jammed the wheel—your single box spanner wili ensure that.

The tourist kit

If you are the type who travels a long way or you would like a more comprehensive toolkit, the collection in Fig. 1 should suit admirably. First, there is the puncture outfit. This is a pretty standard item and should contain everything you will need—rubber patches, canvas for tyre patching, french chalk and rubber solution.

The thing to remember is to replace patches as you use them and to renew the rubber solution from time to time whether you use it or not. Once the tube has been opened, it has a nasty habit of drying up and being non-existent when you need it.

Two tyre levers are a necessity. You might possibly be able to make do with a screwdriver blade and the end of a spanner, but things are much easier with the proper levers.

The spanners you carry depend to a large extent on the bike you ride. You need at least one spanner to fit every nut on the machine. A good box spanner is very useful for things like the saddle pillar, handlebar extension, mudguard stays and similar items. For the wheels, however, a couple of good ring spanners or open enders are much better.

For the wheel cones, you must have a cone spanner and here it is always best to buy a good one. A thin-bladed type of good steel and accurately machined is a good investment. For the occasional time when the bottom bracket or the head have to be tackled on the road, there are special spanners available A couple of typical examples are shown in Fig. 2.

If you ride a lightweight machine, the odds are that the brakes may be of foreign manufacture and this may mean a special metric spanner to fit the nuts

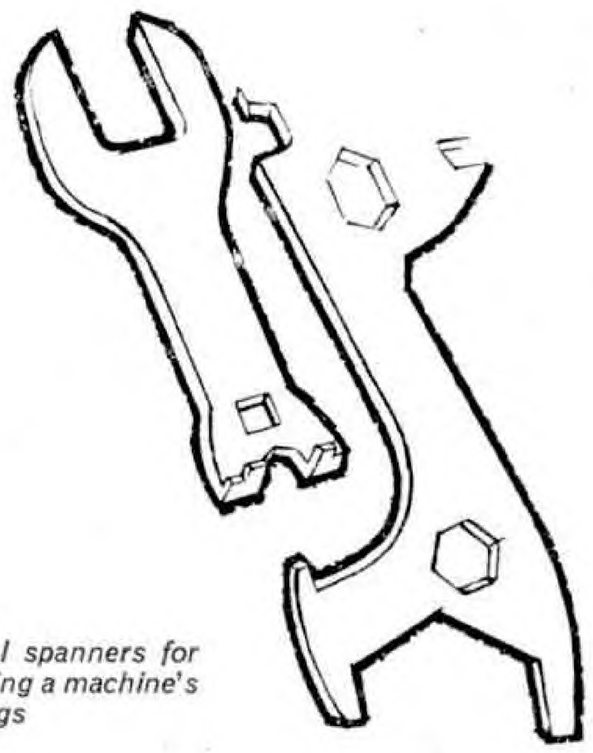


Fig. 2. Typical spanners for adjusting a machine's bearings

concerned. If there is any other unusual equipment on your machine, make sure that your toolkit is equipped with the appropriately sized spanners.

Other essentials

Additional items which are necessary are a good strong screwdriver and a small pair of pliers. Make sure your screwdriver offers a really good grip and ensure, too, that the pliers are of a useful size—a small pair would probably be best. Finally, two more tools which may be very useful for the long distance tourist are a spoke key and a chain link extractor.

As can be seen from Fig. 1, although this list sounds long and formidable, the actual space occupied can be very small and the whole kit will fit into a suitable tool roll which can be either bought or made.

Spares for the tourist depend a great deal on how far one is travelling. If you are thinking about a couple of weeks abroad, the following is a good selection. A spare cotter pin, already filed and complete with washer and nut, a spare inner tube, half a dozen spare spokes—make sure they are the right size for your bike and that they are equipped with nipples.

Other small items like spare nuts and bolts for toeclips, chainring, etc., should be carried in a small tin—a tobacco tin is fine—and to these can be added a couple of spring links and valve parts. Finally, a coil of strong wire can be used for a great many emergency repairs.

One final thought; if you are including an oil can in your kit, make sure the can and washer on the spout are really oiltight. A leak could make a terrible mess of your saddlebag.

Falcon

THE LIGHTWEIGHT CYCLE

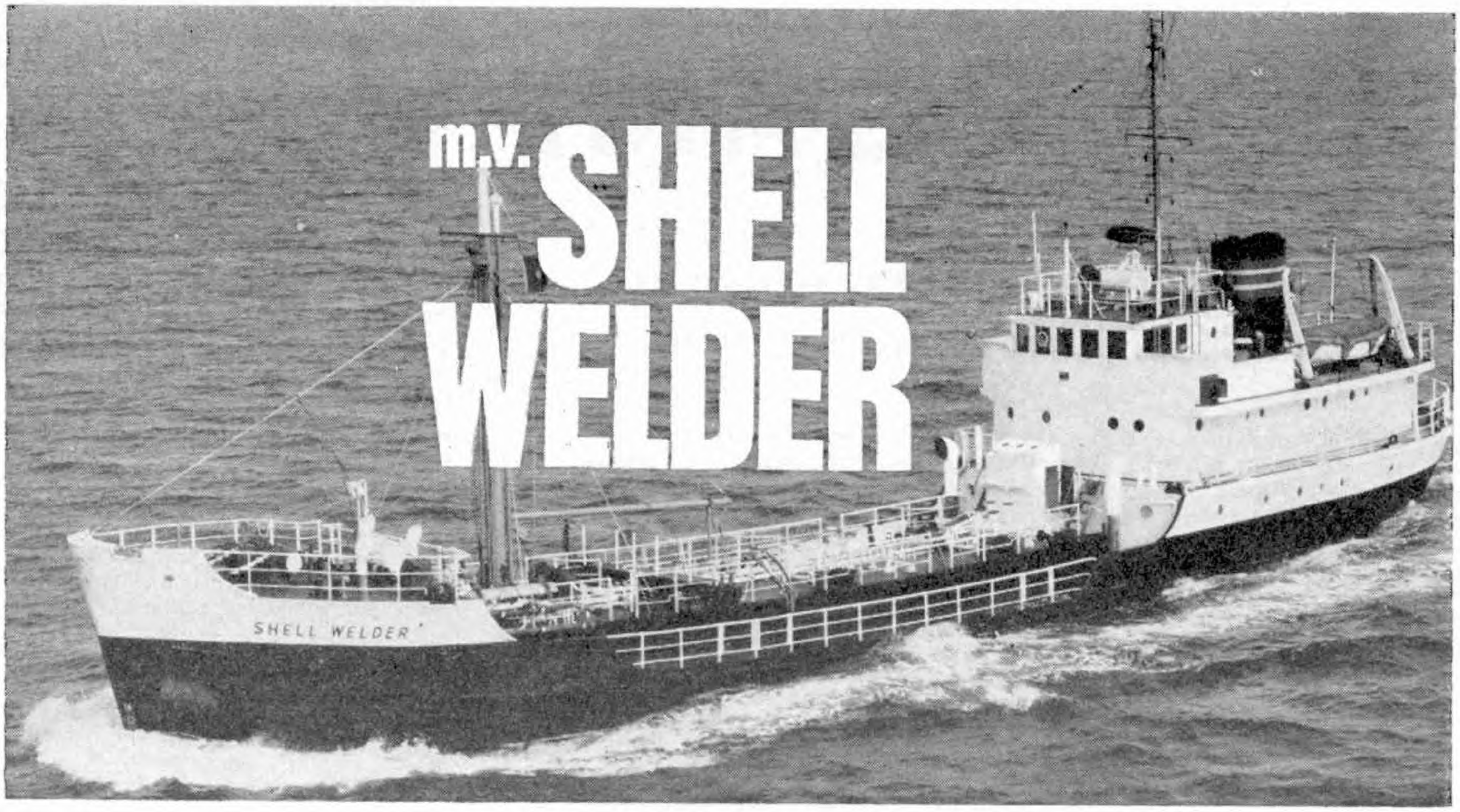
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m.v. SHELL WELDER



Robert Gore gives hints and tips on how to construct this super model coastal tanker...

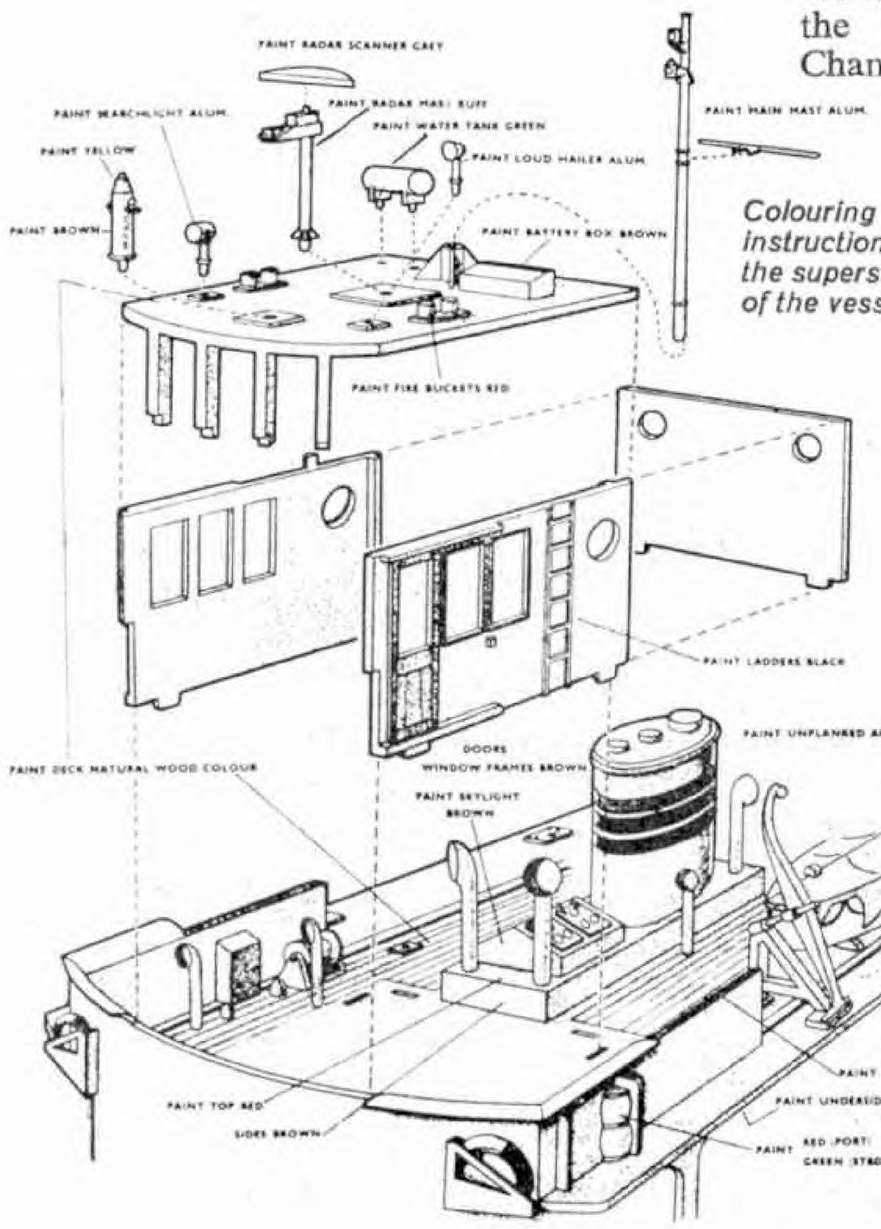
ALTHOUGH not so grand as the large ocean-going ships, the smaller coastal vessels can nevertheless still prove extremely interesting to model. This particular model by Frog, is of a coastal tanker of 569 tons gross, the m.v. Shell Welder. The actual ship, which is owned by Shell-Mex and B.P. Ltd., was built to their special requirements at the Wallsend-on-Type shipyard of Clelands (Successors) Ltd., in 1955.

She is engaged in the transportation of refined oils, motor spirits, gas oils, kerosenes, etc., against which the interior of her cargo tanks are protected from corrosion, between her owners' main refineries and their waterborne depots in the United Kingdom, including the Channel Islands.

Should you live near the south-east coastlines or have spent a holiday there, there is a good chance that you have seen this attractive little tanker going about her duties. Many is the occasion that I have watched her in the Dover Strait, often on successive Saturdays. As far as I am aware, this is the only vessel in the world of this particular design, therefore, there are no sister ships.

Modern equipment

With such navigational aids as radar, Decca navigator, echo-sounder, radio telephone, she carries a cargo of some 550 tons in four tanks. The crew complement is sixteen officers and men. Propulsion comes from a six-cylinder



Colouring instructions for the superstructure of the vessel

The complete Shell Welder kit awaiting assembly



Crossley diesel engine, developing 570 b.h.p. at 400 r.p.m.

The overall length of the model measures 15½ inches, but as the real ship is 170 feet 11 inches long, it will soon be appreciated that the scale relationship between the real thing and the model is considerably larger than that usually found in models.

This gives the manufacturers a chance of producing in this fascinating model every feature down to the smallest detail. This is yet another reason why this kit is so interesting to assemble, with small parts such as valve wheels, lights, master compass, fire buckets, being large enough to be accurately reproduced and individually painted.

High-impact polystyrene is the plastic from which the kit is moulded and is in a basic white colour to suit a number of pieces, including the more difficult parts to paint, like the upperworks, whilst the remainder should be painted in accordance with the coloured box lid and written instructions.

The deck railings and anchor chains are of moulded polythene, rather more pliable than polystyrene, and so that they may be bent to shape without cracking.

Tricky assembly

It seemed that by gripping the uprights with a pair of tweezers at the level of the lowest rail, it was the easiest way of placing the feet into the holes provided on the deck. At first, they were inclined to spring out, but repeated replacement eventually overcame their obstinacy.

Black thread is suggested by the manufacturers as being suitable for the rigging. Personally, I preferred to use a brown and more rope-like thread, affixed by a small blob of adhesive. The red flag denoting the carrying of petroleum can be wrapped round a thread running from the yard to the base of the foremast. For more realism, this flag and the red ensign can be crumpled slightly to give a 'windswept' effect.

Obtaining a straight line at the meeting of the red and black paint on the hull is not easy. It may be helpful to mark a guide line in pencil first and when satisfied with its accuracy, you could stick one edge of Holdfast self-adhesive tape along the line.

Painting the model

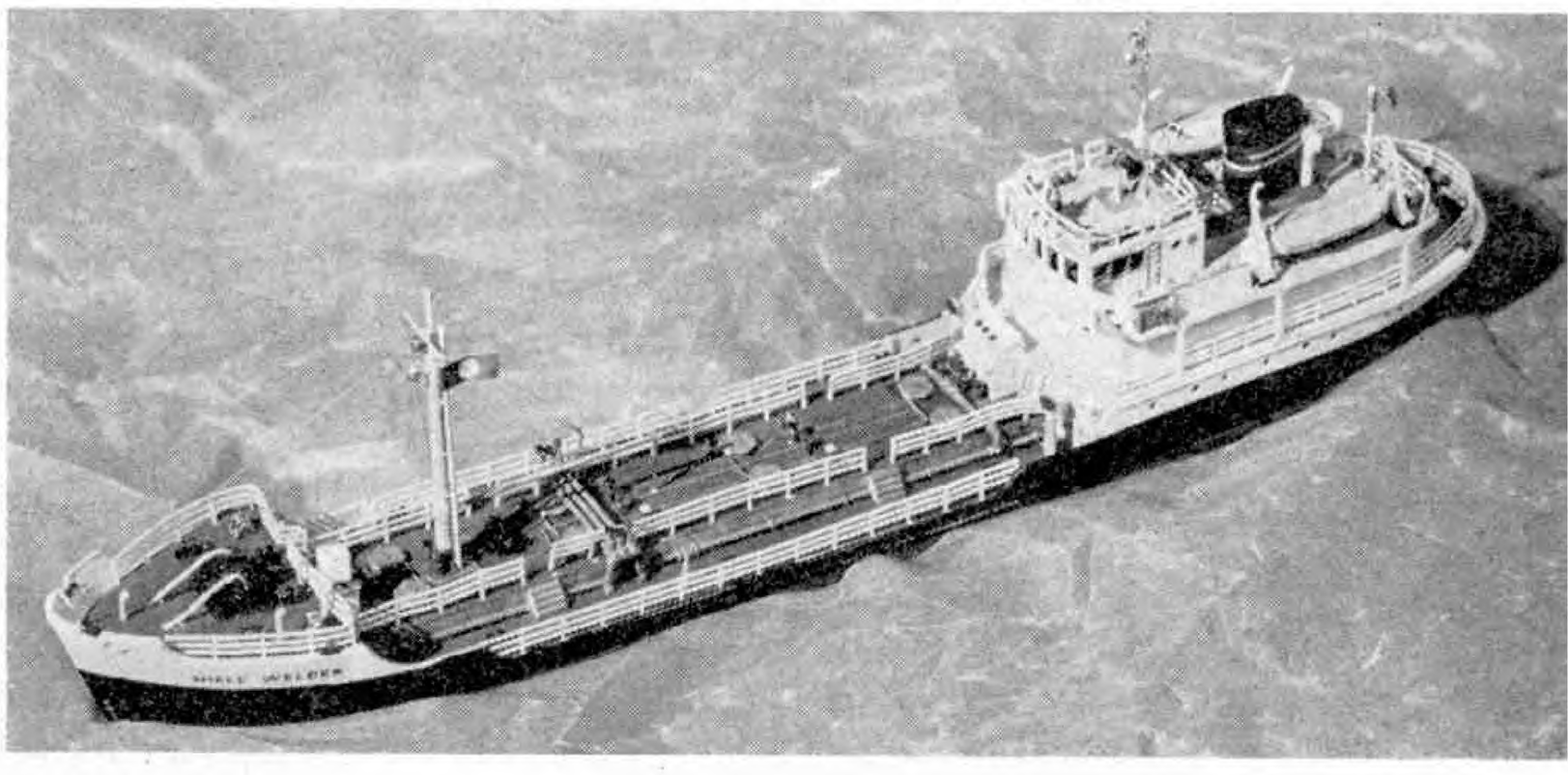
On painting the uncovered side with the appropriate colour, a reasonably straight line will be achieved. To deal with the other side of the line, you can carry out a similar operation, but be sure to allow the paint to dry thoroughly before applying the tape. The curvature of the bows and stern present a little problem for the placing of the tape and it may be necessary to make one or two adjustments or cut it to fit along the line.

The box lid shows different funnel markings from those on the transfer enclosed with the kit. However, at the end of 1963, the owners instituted a change of funnel colours for all their fleet and if you care to be very correct you can adopt the up-to-date scheme.

The new colours consist of a yellow between two white bands, each being exactly half the width of the yellow, on black. Similarly, as with painting the hull, a strip of Holdfast tape can be used to screen the white and yellow areas, painting the remainder black. After carefully removing the tape, when the paint is dry, cover both white band areas with tape and then paint the remaining band yellow. Pencil guide lines will help. Removal of the tape when the paint is dry should give you the new funnel.

For the fastidious, the following are the owners' specified colours where they conflict with those mentioned in the instruction leaflet or box lid: ventilators —both inside and outside—white, trunk (i.e. tank top) sides—black, steel decks—grey, fresh water tank—white. Another alteration concerns the radar scanner. The original seems to have been replaced by a slightly different design, elliptical in shape.

The completed model photographed on crumpled waxed paper to give a realistic background and wave effect



Close-up of the forecastle showing fine detail points



Lettering the hull

The name plate on the stand has raised lettering and, being of the same colour as the background, is not pronounced. If you colour this plate and letters with some distinctive shade to contrast with white, when dry, you can gently rub over the raised letters with fine abrasive paper, wrapped over a flat piece of board, thus removing the paint from the letters.

This splendid Frog scale model sells at 12s. 6d. and is obtainable at good model shops. In view of the concisely produced instructions, so lavishly illustrated with 'exploded view' drawings, I feel that there is little more to add.

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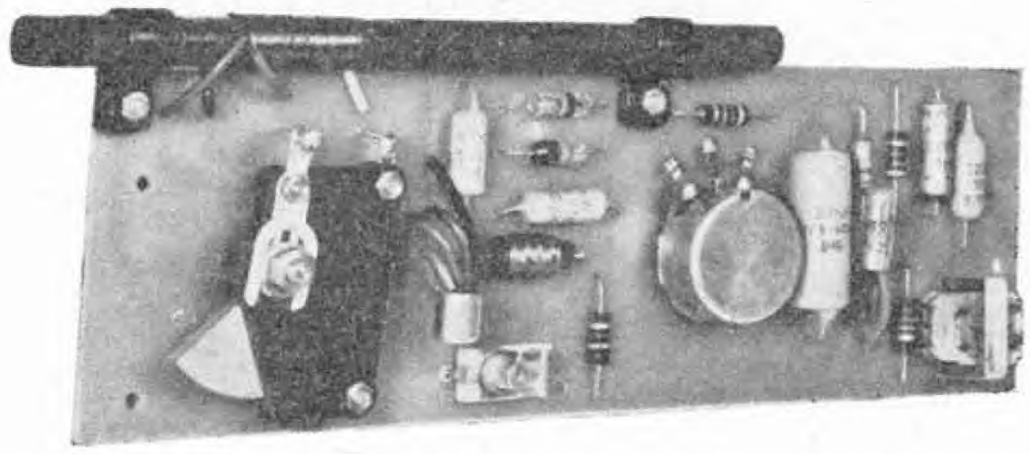
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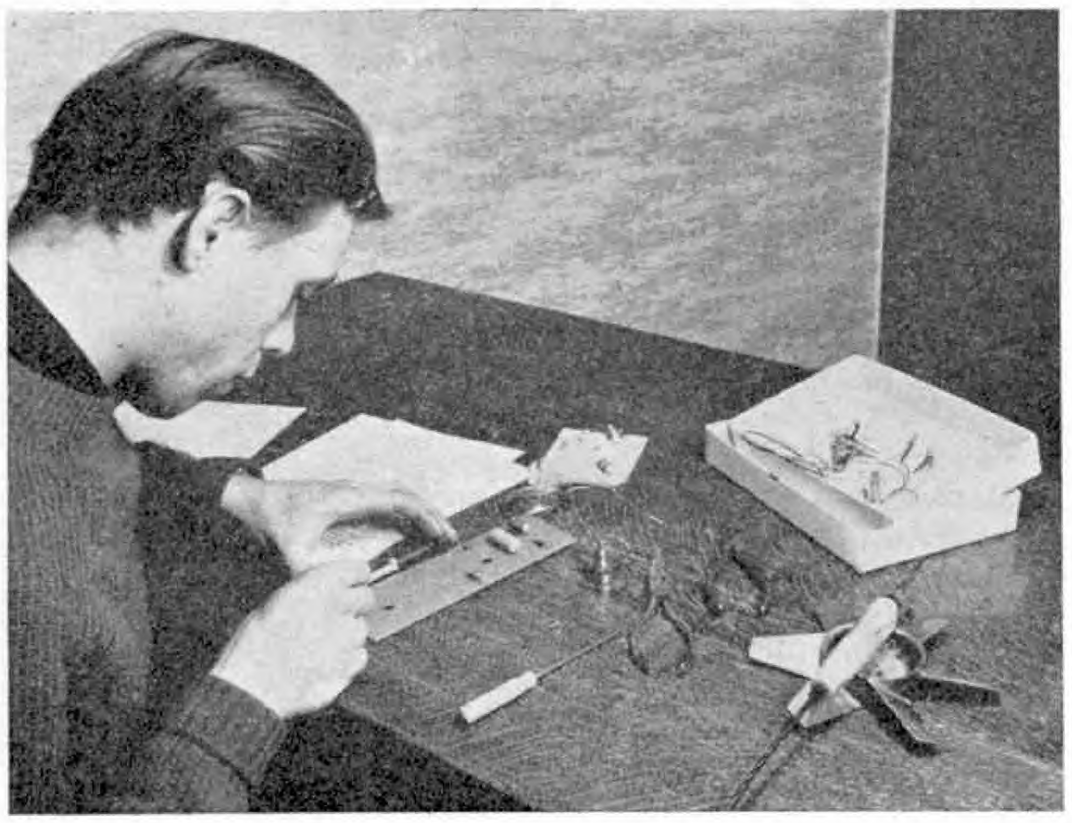
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HEARD THIS ONE?



A Near Thing

Hurtling along a country lane in his sports car, a young man was horrified to see an old horse and cart pulling out of a field on to the road ahead. Jamming hard on his brakes, the driver skidded violently towards the horse and cart then, at the last minute, managed to swerve into the field to avoid them. The car slipped and spun horribly on the grass and eventually rolled over.

"D'ya see that, Paddy?" said the farm labourer to his friend on the cart. "It's a good job we got out of the field! The way that chap hurtled in there he would have run us down for sure!"

Call Again!

"I'm very sorry," said the maid to the young man standing on the doorstep. "But Miss Brown said to tell you she is not at home."

"That's all right," replied the visitor. "Perhaps you will tell her that I'm glad I didn't call!"

Happy Ending

Boss: "We're going to give you a raise, Jones. We want your last week here to be a happy one!"

Who Dunnit?

"Does the defendant plead guilty or not guilty?" asked the judge of the timid, first offender in the dock.

"I—I don't know, your honour" the defendant replied. "I h-haven't heard the evidence yet!"

Soup Jokes

"Waiter! There's a fly in my soup!"
"S-s-s-sh, sir. Not too loud, everybody will want one!"

* * * *

"Waiter! Your finger is in my soup!"
"Not to worry, sir. It's not hot!"

* * * *

"Waiter! There's a dead fly in my soup!"
"Yes, sir. The hot water kills them."



"It's not the Barbarians, sire. It's the fans of that minstrel troupe we hired for the banquet!"

Answers to puzzles on page 15

■	A	P	P	R	E	C	I	A	T	E	S	■
C	■	R	E	A	L	■	R	I	O	T	■	C
O	■	O	A	T	M	E	A	L	■	H	E	R
U	N	C	L	E	■	■	S	■	H	E	R	E
N	■	E	S	S	E	N	C	E	■	R	E	D
T	■	E	■	■	N	■	I	■	E	■	■	E
R	I	D	I	N	G	■	B	I	D	D	E	N
Y	■	■	N	■	L	■	L	■	I	■	■	T
S	I	M	U	L	A	T	E	■	T	O	P	I
I	■	■	R	■	N	■	■	S	O	■	■	A
D	■	S	E	N	D	S	■	T	R	I	A	L
E	■	O	■	A	■	E	■	E	■	A	■	S
■	E	L	E	P	H	A	N	T	I	N	E	■

Tricky Teaser

A. 2,400 seats
B. Bell, Bill, Pill, Pile Pine, Ping, Ring
C. N which becomes Z
D. One good turn deserves another

Quick Quiz

1. A harbour signal. The arm stands horizontally if the harbour is clear for a ship to enter
2. Angel Falls, Venezuela, with a 3,212 foot drop
3. A squid or cuttle-fish
4. A square flag with a ball above or below it is a distress signal at sea.
5. False. When attacked, a porcupine rushes backwards at its foe and can inflict severe wounds with its quills.
6. Taj Mahal, India

If you score over 35—Excellent
over 30—Good
over 25—Fair

Car Quiz No. 8

Jaguar Mk. X

DO-IT-YOURSELF ELECTRONICS

Interested in Radio or Electronics? Here is a review of electronic assembly kits on the market . . .

IN this day and age, electronics are playing an ever important part in our lives. Computers are solving problems in minutes which once took days, television pictures are being bounced around the world with electronic satellites in space and life is generally being made more easy for us all by the harnessing of the power of electricity. Not surprisingly, there are many enthusiastic amateurs who take a keen interest in building their own electronic apparatus and a few companies have quickly realised that a great many more people would take up the hobby if easy-to-build kits were available.

There is no doubt that electronics is a very important part of our lives at present and will be even more important in the future. Therefore, if you wish to understand the principles of radio and other branches of electronics there is no better way to start than with a do-it-yourself electronic kit.

Here we feature the more well-known kits, some of which require the minimum of tools to assemble. If you have any questions or enquiries about any of the kits mentioned, do not hesitate to write to Meccano Magazine (Electronic Kits) and we will forward your letters to the manufacturers.

Radionic products

The first of the simple, solderless kits is the Radionic equipment made by Radionic Products Ltd. The components in the Radionic kits are assembled and pre-soldered to units which are attached to brass strips by small, 6BA nuts and bolts.

Numerous working units can be constructed including a transistor radio, short wave radio receiver, recorder player, digital computer, in fact, many interesting models. The illustration on this page shows exactly how the units are bolted on to a specially drilled board and they can be assembled and dismantled easily, enabling one to re-use components over and over again.

Full wiring diagrams, using correct circuit symbols as well as simple instructions, are included in the kits, making assembly very easy. There are four sets available varying in price from £5 18s. 6d. for the No. 1 set, to £14 19s. 6d. for set No. 4. One of the advantages with Radionic equipment is that 'extra' parts can be bought separately to expand the range of models you can build with the various sets.

Philips Electronic Engineer

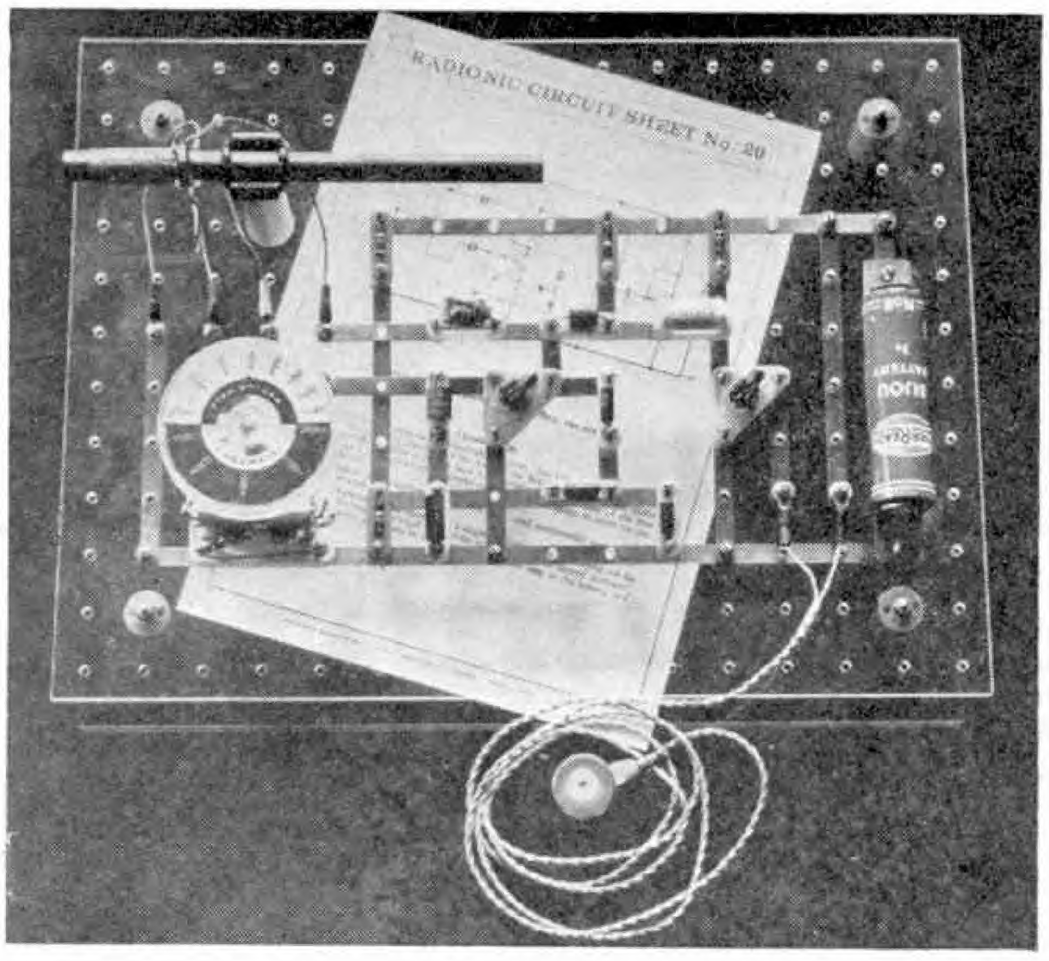
Philips is, of course, one of the largest manufacturers of electronic equipment in the world and it is not surprising that they have produced electronic kits for the younger enthusiast, as an introduction to electronic engineering.

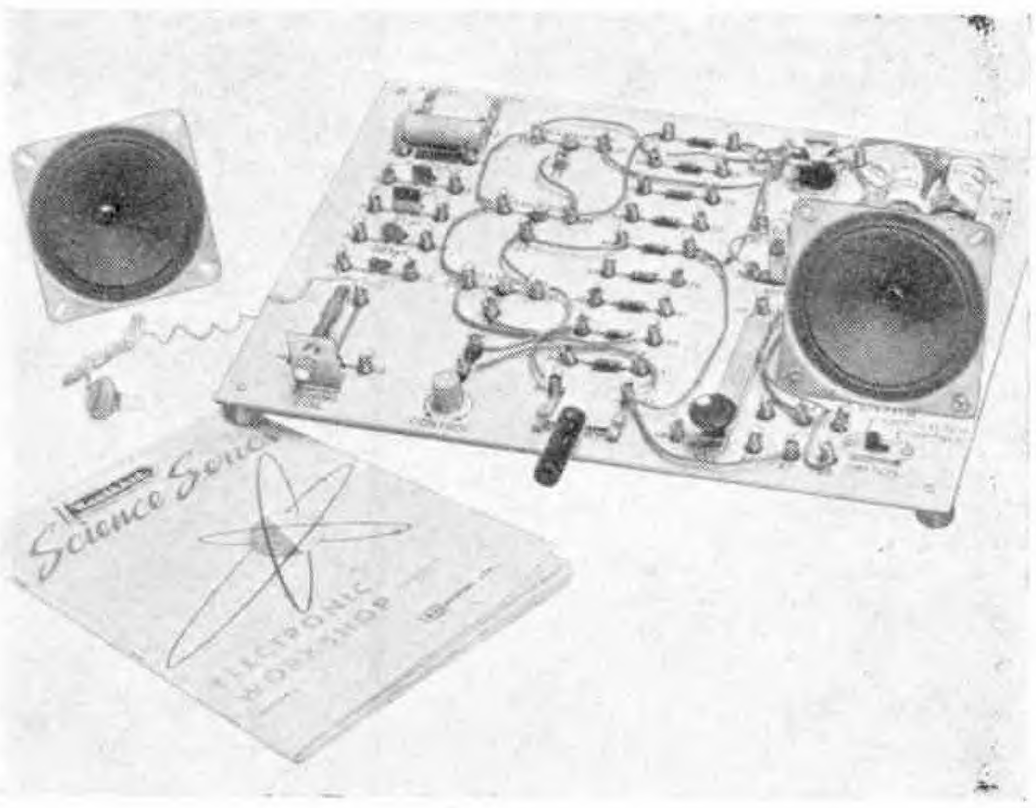
Their basic Electronic Engineer EE8 kit, with which one can build eight circuits, including a morse code set, two radios, a gramophone amplifier, Flashing indicator, moisture indicator, burglar alarm and automatic night light, only costs £4 19s. 11d.

A supplementary kit, designated the A20 and costing £3 9s. 6d., can be added to the basic kit to provide thirteen more working circuits, including a three transistor radio, advanced burglar alarm and an electronic organ. Once again, no soldering is required as the components are connected together by spring clips. This means that all components are reusable in the different circuits, plans for which are included in each outfit.

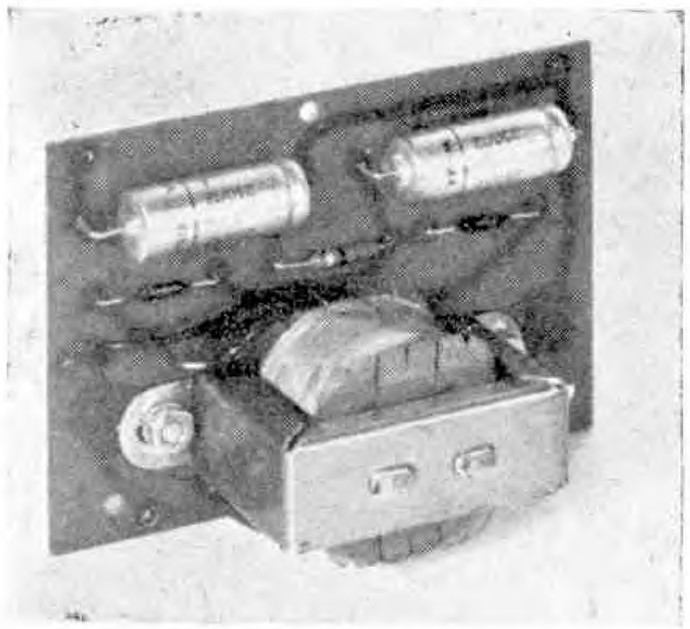
Building with Basikits

Basikit designs are complete, printed circuits, on which the builder has to solder the components in their correct place according to the very comprehensive instructions given with the kits. There are three Basikits, each of which are complimentary to each other. The first, BK1 is a





(Left) The Radionic kit showing how components are connected by brass strips on a pre-drilled board. The model shown is a transistor radio kit. (Below) The Heathkit Electronic Workshop radio, constructed by joining components with small clips



The Basikit BK3 power unit

radio receiver for earphone operation and works from a 9 volt dry battery. The kit, complete with instruction manual costs £2 19s. 6d.

The second kit, BK2, is an Audio Amplifier which can be connected to the radio receiver to give loud-speaker performance to the BK1 kit. The price is £2 17s. 6d., and includes assembly instructions for the 42 component kit.

The next stage is to supply power, other than a battery, to your transistor radio and here the BK3 power unit is of assistance. Coupled to the radio it provides a convenient source of D.C. power at 9 volts. Once again, complete assembly instructions are included in the price of £2 2s. 6d. Apart from these basic units, Basikits can supply a range of 'extras' to improve equipment.

Hear all Continents

Guaranteed to pick up radio broadcasts from all the continents in the world, that is the bold statement made by H.A.C. Short-Wave Products. Single and two valve kits, which include drilled aluminium chassis, flex, connecting wire and diagrams cost from 34s. 6d. upwards.

Actually, the minimum that one can build one of these receivers for is £2 2s. 6d., as the price of the basic kit does not cover the 8s. 0d. cost of the valve. Then, one has to add the price of 16s. 0d. for headphones and the cost of two batteries.

If one wishes to amplify the radio receiver for loudspeaker reception, H.A.C. have a separate amplifier kit costing £2 17s. 6d. Also, all H.A.C. receivers use interchangeable short-wave coils to give a waverange of 10-180 metres. The coils cost 5s. 0d. each and there are a set of four to complete the range.

Heathkit workshop

If you buy an Electronic Workshop Kit by Daystrom Ltd., you become a member of the Junior Experimenter's Club. The idea behind the Electronic Workshop is to provide a simple construction outfit capable of making over twenty different working units, with components being used repeatedly. Spring clips are used to connect the various units and although the kit costs £7 13s. 6d., this includes two loudspeakers, 3 transistors, resistors, capacitors and slug-tuned coil. Full instructions and operating manuals are included.

For the older members of the family, six and seven transistor radio receiver kits are produced by Daystrom, being sold at £12 11s. 0d. and £14 18s. 0d. respectively. Printed circuits make construction of these radios very simple, although soldering is necessary as against the spring clips of the Junior kit.

Lernakit by Radiostructor

Finally we come to a large box of electrical components including over 20 resistors, 20 capacitors, variable resistors for controls, valves, cathode ray tube, rectifier and mains transformer. Sockets, plugs, valve holders, tag strips, even nuts and bolts are included in the Radiostructor Lernakit which gives twenty-five experiments in electronic engineering.



The Heathkit transistor radio

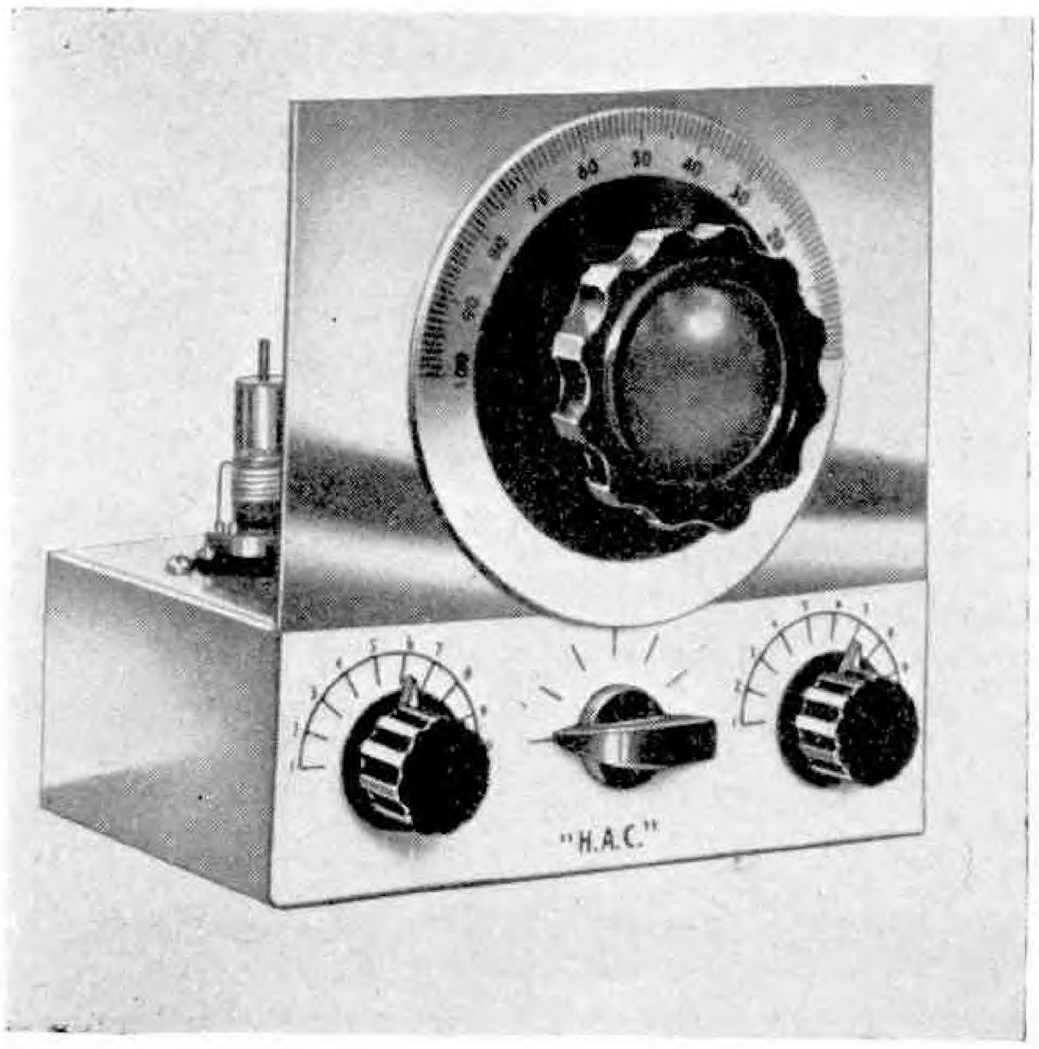
Many different units can be built from the Lernakit including a simple transistor radio, a rectifier circuit showing how current is changed from A.C. to D.C. on an oscilloscope, in fact, numerous interesting and instructive working models.

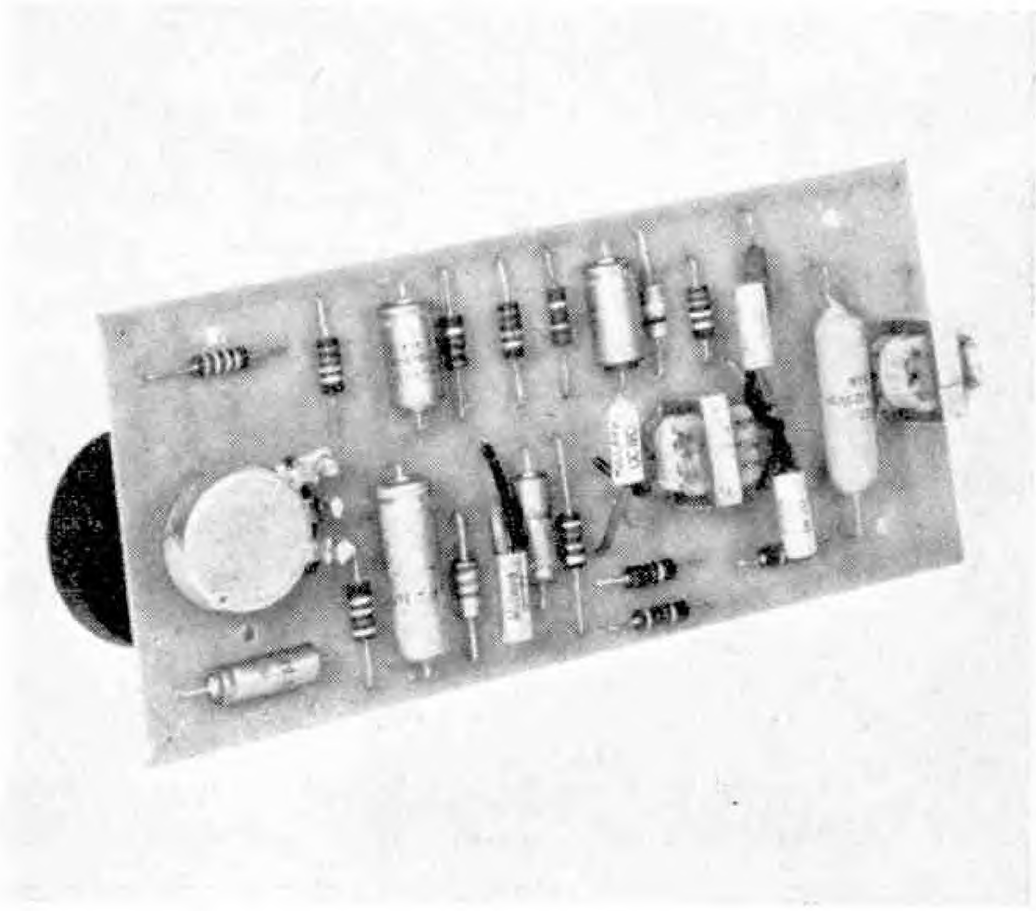
Soldering is necessary during construction and full assembly instructions are provided with the Lernakit. Unfortunately, we do not have the price, but no doubt the manufacturer will provide this with the free brochure.

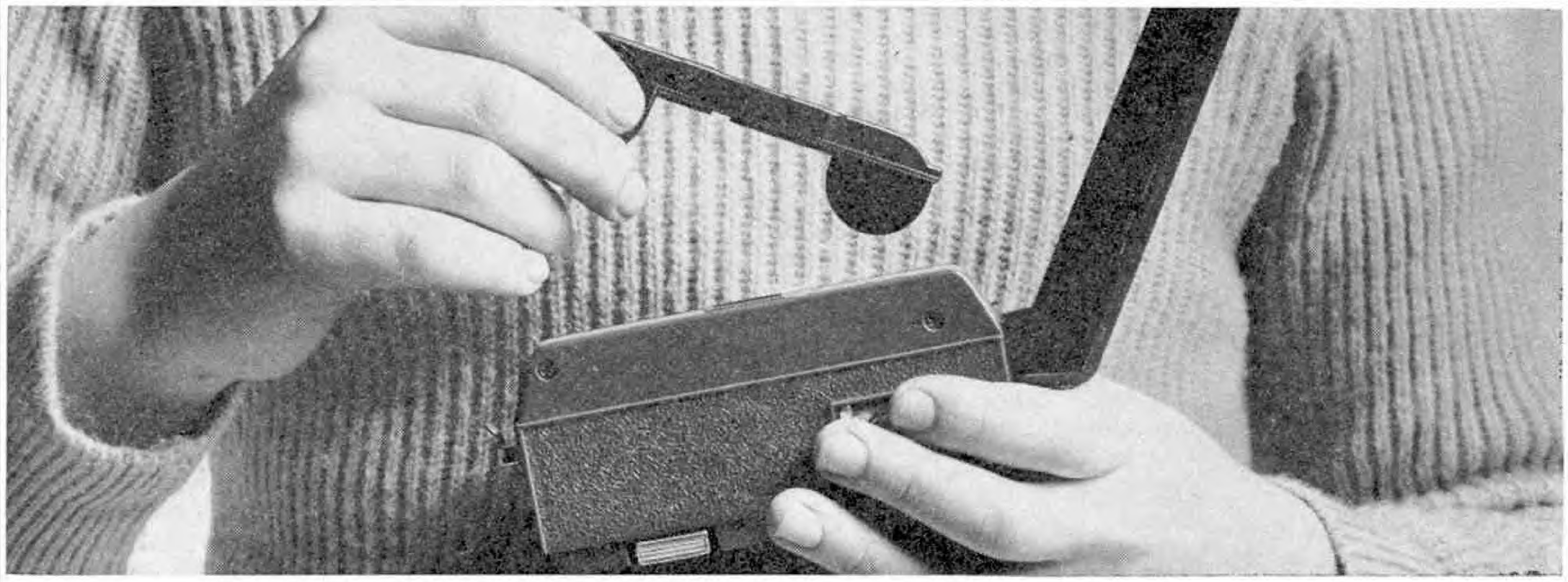
Electronic equipment suppliers

Two of the more helpful suppliers of electronic apparatus are Proops Bros., and Home Radio, Mitcham. They are able to supply all manner of electronic equipment, from build-it-yourself radio kits to simple items such as transistors, capacitors and valves. Their advertisements appear in this issue of the magazine and we have found them of utmost assistance in providing information about electronics and radio equipment.

(Left) The Hear All Continents short wave receiver which is available in kit form. (Below) Basikits audio amplifier is assembled and soldered on to a printed circuit







Can you load a camera in the time it takes to read this?

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2. Drop in the pre-loaded Kodapak cartridge

3. Close the back and wind on!

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cameras

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Photography

MOUNTING YOUR PRINTS

THERE are various methods of mounting prints, using rubber solutions, paste, etc., but the cleanest and easiest is 'dry' mounting. This is accomplished by placing a special tissue between the print and the mount and applying heat, which melts the shellac in the tissue and sticks the print to the mount.

This method of mounting prints costs no more than any other method, unless you wish to buy equipment to do the work. However, an ordinary domestic iron is quite suitable if used carefully.

The first step is to make sure that the print and mount are both perfectly dry. Putting the warm iron over them will ensure this, but take care that the print is not damp or it will stick to the iron.

After ironing your print, preferably with a piece of clean dry paper to protect the surface of the print, you have to attach the tissue to the back of it as in Fig. 1.

Here a special electric iron, costing two pounds, is being used, but you can easily do it with an old tea spoon warmed in a flame, but make sure it is a clean one. The print should only be attached by a small spot in the centre, enough to prevent the tissue falling off. If the tissue will not stick, the spoon isn't hot enough. If it makes a sizzling noise and a strong smell of hot shellac is apparent, then it is too hot!

The next stage, shown in Fig 2. is to trim the print and tissue together, so that they are both exactly the same size. A trimmer is useful here, but if you haven't one, you can use a sharp knife and straight edge. Note that the knife is held at an angle so that the print is slightly undercut.

If you cut the other way, you will be left with a thin line of tissue around the print and the white paper of the print itself. It is essential that your straight edge is really straight. The ruler used in the photograph has worn down at the end and could produce curved corners on the print.

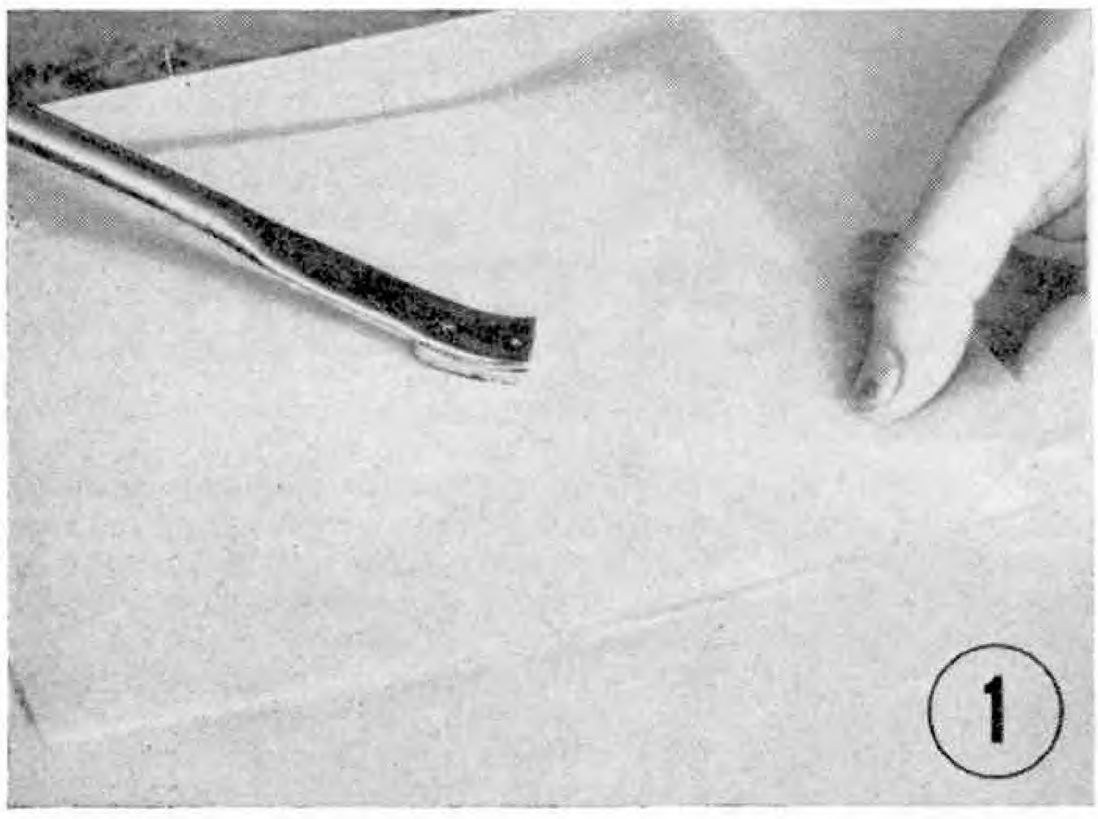
After trimming, the print is placed in position on the mount and each corner is lifted in turn to reveal the tissue, see Fig. 3. The tissue is then touched lightly with the hot spoon to attach it to the mount and prevent it moving during the final operation. It is essential that the tissue lies flat on the mount during this operation.

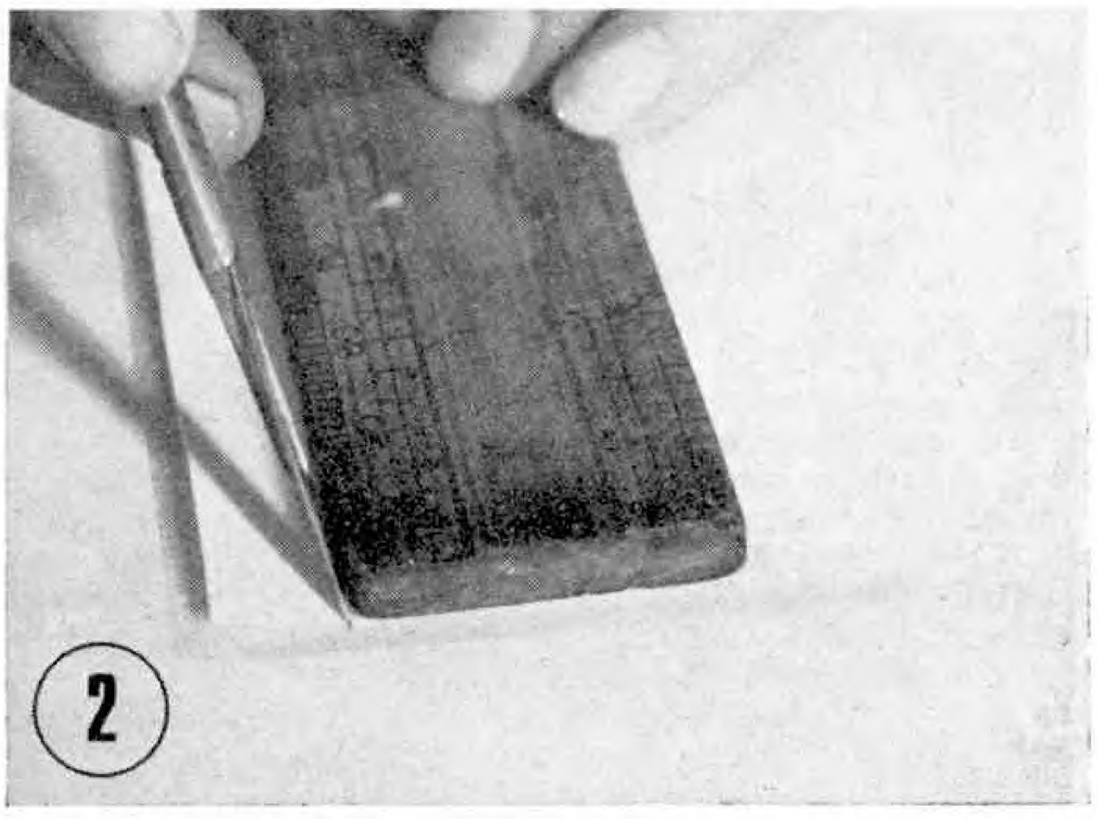
The final stage is to cover the print with a piece of clean thick paper or thin card and gently press the print all over with the iron, see Fig. 4. The correct temperature for mounting is 70-80 degrees centigrade, which is a low setting on the normal domestic iron. It is not possible to tell you which is the correct setting to use, as irons differ slightly, but you will soon find out with practice.

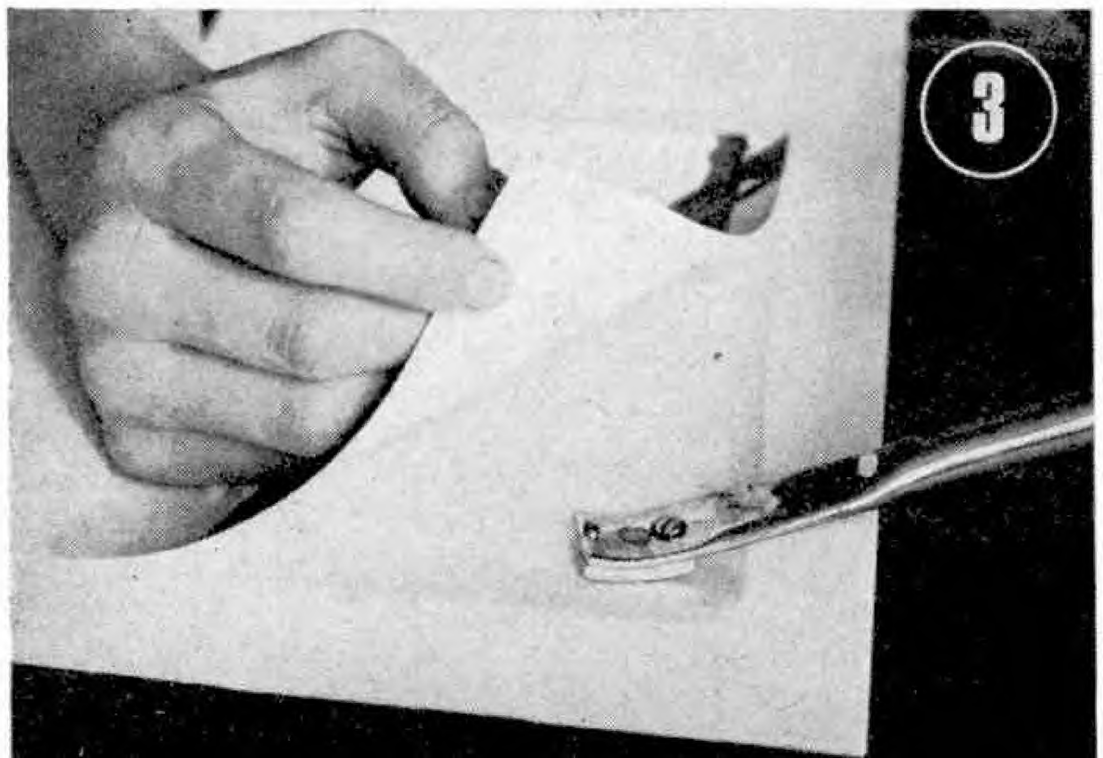
The pressure is required for 10 to 15 seconds, after which your print should be firmly fixed to the mount. If the print is loose, you have probably made one of the following mistakes. Either the print or mount is damp or the iron is too hot or too cool. If too hot, the tissue will stick to the mount but not the print. If too cool, it will stick to the print and not the mount.

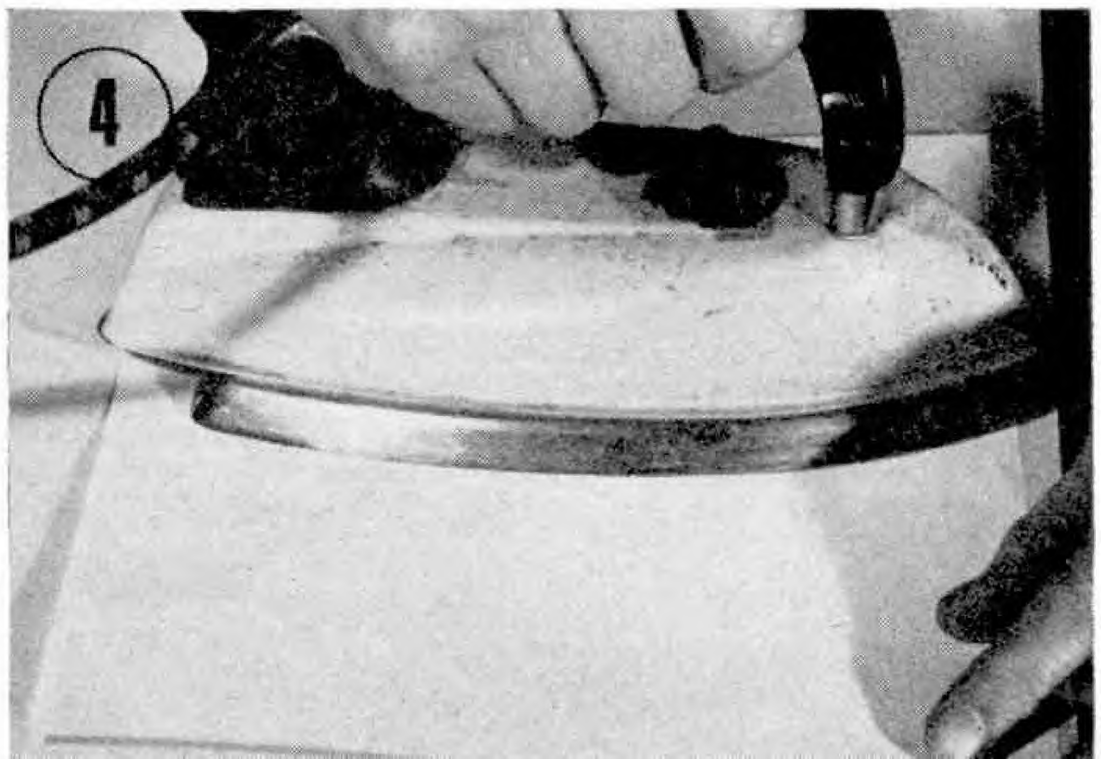
These instructions apply to all but glossy prints. If you want to mount glazed prints, you will have to be very careful not to mark the surface in any way and you should use an old glazed print instead of the paper or card as a cover when mounting. This will help to preserve the surface.

If your iron is a steam model, make sure it is empty before you start or you will end up with soggy prints and mounts that won't stick together.—**Paul Dong**

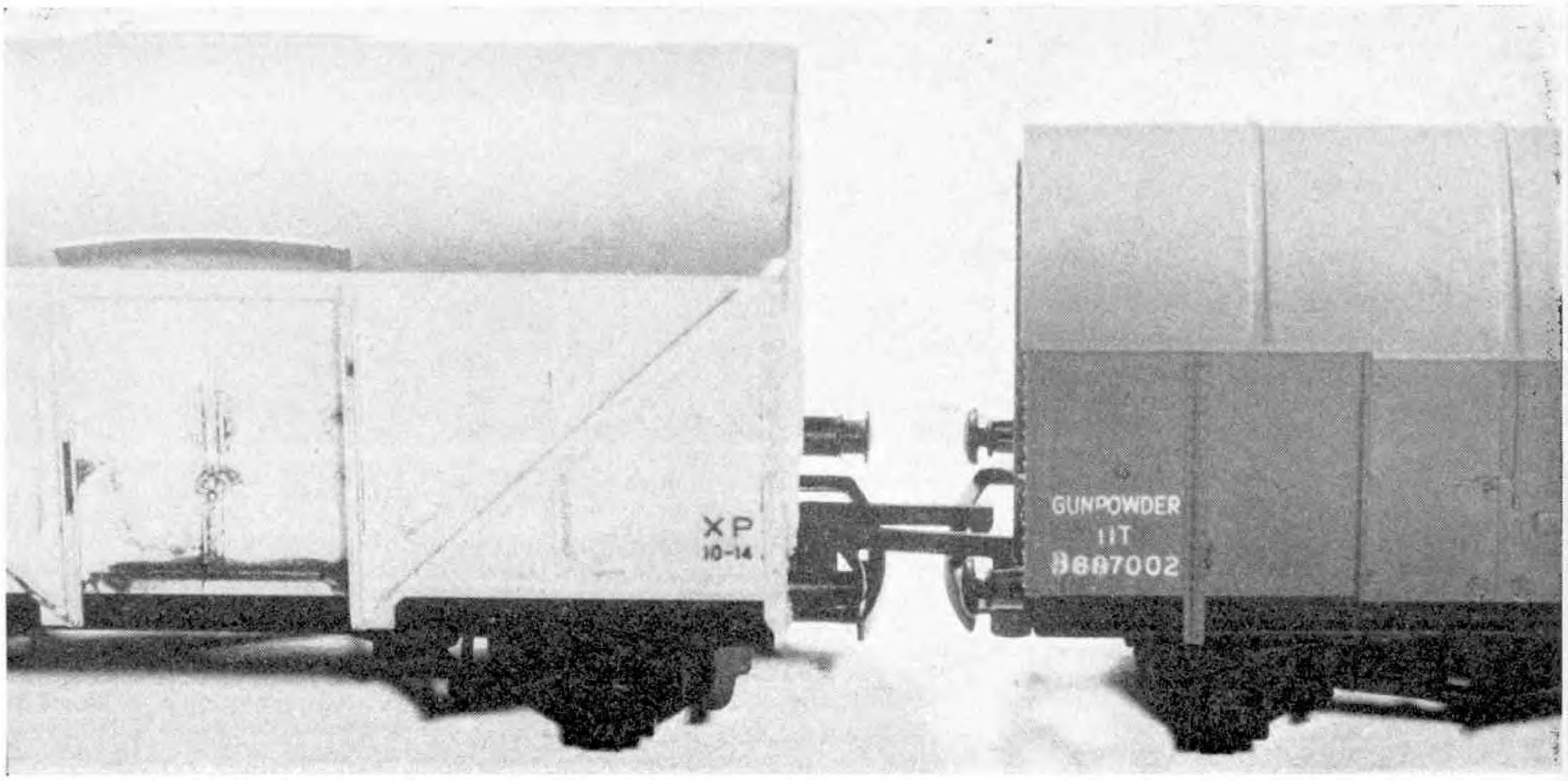








By Linesman



Triang-Hornby Conversions

THE difference in design and operation between Hornby-Dublo and Triang tension lock couplings is the only thing which prevents the use of a combination of Hornby-Dublo and Triang model railway systems. The Converter Wagon, which will form part of the Triang/Hornby range, will help owners of Hornby-Dublo who wish to run their rolling stock on the Triang Super 4 track system and a special converter rail will also be included in the Triang/Hornby range to join the Hornby-Dublo track to the Triang Super 4.

Although the Converter Wagon is by far the most convenient answer to the coupling problem and is one which a large number of Hornby-Dublo users will favour, many of the more enthusiastic owners may themselves prefer to convert the Hornby-Dublo Couplings on their wagons to the Triang type. This operation is not as complicated as it may sound and in the majority of cases it takes only five minutes to complete the work.

The tools required are simple and all that will be needed to effect a coupling conversion is first, a vice in which to hold both the rolling stock and the loose couplings whilst they are being worked upon. This need not necessarily be accurate, since it will only be used to hold parts that are to be drilled. Second, a hand drill and a No. 43 bit will be necessary, plus a junior hacksaw and file.

The Hornby-Dublo goods rolling stock of the more up-to-date S.D. series, as illustrated in the current catalogue, usually has the couplings riveted in position, although in a minority of cases, plastic push-in rivets have been used. The latter are easy to deal with, since it is only necessary to prise out the plastic rivet.

In the case of riveted Couplings however, it will first of all be necessary to remove the wagon or van body from the chassis and in most of the later rolling stock, you will find a screw underneath the wagon which, when removed, releases the wagon or van body.

Metal lug clips

Many items of rolling stock, including the comparatively new six-wheeled passenger brake van, are clipped on with metal lugs that are bent at the bottom of the wagon and these are usually to be found at either the ends or the sides.

The lugs can be prised up with a screwdriver or other similar instrument and when they are in a vertical position, the chassis can be pulled off to reveal the other ends of the rivets holding on the couplings. You will find it necessary to remove the chassis in practically every case, even with those items of rolling stock with the push-in rivets, since it is necessary for a nut and bolt to be used to fasten the Triang coupling in place.

Among the wagons that will have clips or lugs holding the body to the chassis are the 16-ton Mineral Wagon No. 4655, the No. 4610 Bogie Bolster Wagon, No. 4646 Low Sided Wagon with two Cable Drums and all other low sided wagons with and without loads, No. 4605 40-ton Bogie Well Wagon, No. 4615 Double Bolster Wagon with timber load, No. 4656 16-ton Mineral Wagon, the four tank wagons, and the six-wheeled passenger brake van.

The Hornby-Dublo Coaches can also

be converted and you will find that it is unnecessary for their bogies or chassis to be removed. This type of conversion can be accomplished quite easily with the bogie remaining in place. The bogies are riveted on and it would be a rather difficult matter to remove them, since they are fixed in a similar manner to the Coupling rivet.

Hornby-Dublo Locomotives, with the exceptions of the Electric Motor Coach, the Co-Bo and the Co-Co, can be converted quite easily by the method described below. The others require modifications of a more extensive nature, and are best left alone.

Replacing couplings

The replacing of the Coupling can begin when the chassis of the wagon has been separated from its body and the first step is to remove the rivet holding the Coupling to the Wagon chassis. This is done by gripping the wagon in the vice and, using a No. 43 bit, drill the rivet out from the uppermost side of the wagon.

It is always advisable to drill the rivet out from this side of the wagon or item of rolling stock, for the drill may slip off centre if an attempt is made to drill through the rivet head on the underside of the wagon. You will find that the rivet can be drilled through very easily and it will not be necessary for you to put any great pressure on the drill. Indeed, this is inadvisable, since there is a possibility of damage occurring to the wagon chassis.

Once the original rivet and Coupling have been removed, you will find a hole just large enough for an 8 BA bolt, but before taking the operation any further, place the Triang Coupling (X171, price 7d.), which should be bought in its assembled form, in the vice, with the pivot end of the coupling bar mounted clear of the vice. Make a 'pop' mark in the centre of the roughly rectangular piece of metal and then, drill with a No. 43 drill. When this has been done, you will find that the head of the 8 BA bolt catches on the rivet holding the coupling hook part of the coupling in position and I would suggest that a flat be filed on one side of the bolt head so that it clears the rivet.

Countersunk fitting

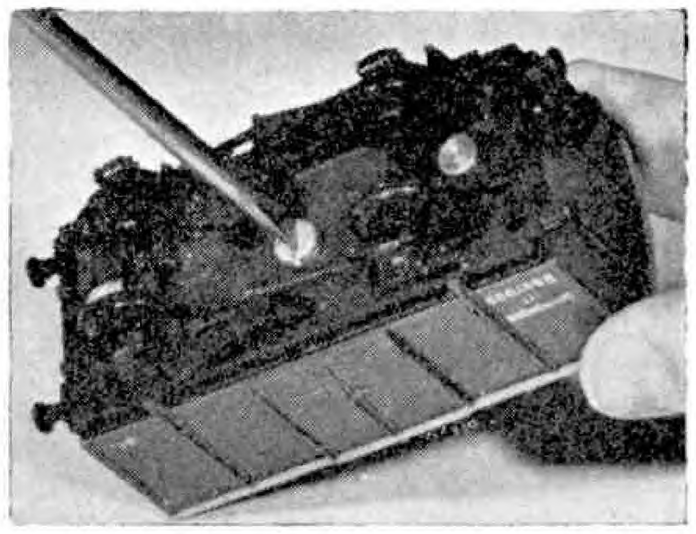
When the bolt is inserted into the hole in the rivet, push the bolt through the hole in the wagon chassis and screw a nut on tightly to secure the coupling in position.

If the nut protrudes above the wagon floor, countersink the hole with a $\frac{1}{4}$ in. drill, so that the nut is flush with the top of the wagon chassis. In many cases you will find that it is unnecessary for the nut to lie flush, but in cases where a metal plate is used as ballast, you will find it necessary for the plate to sit in position firmly.

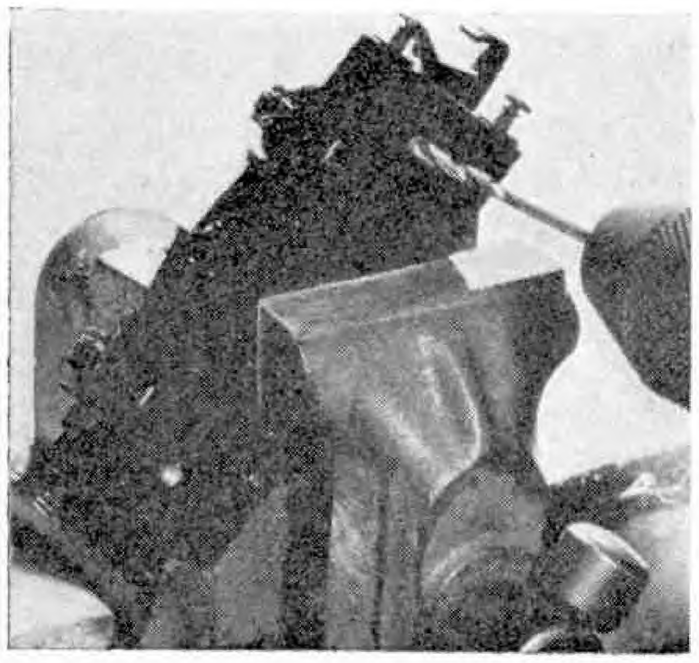
As most readers will know, Hornby-Dublo Coaches have their couplings fitted on the bogies and on most modern coaches in the Hornby-Dublo range, two types of bogie exist. One of these is a completely cast bogie, which has a piece of metal connecting both side frames at the coupling end of the bogie. The other type has two cast sideframes and a metal plate connecting them, which has a piece of metal at either end drilled for the coupling rivet. This latter type presents no difficulty as far as the Triang coupling is concerned, but the other involves a little sawing at the end of the bogie after the coupling has been removed.

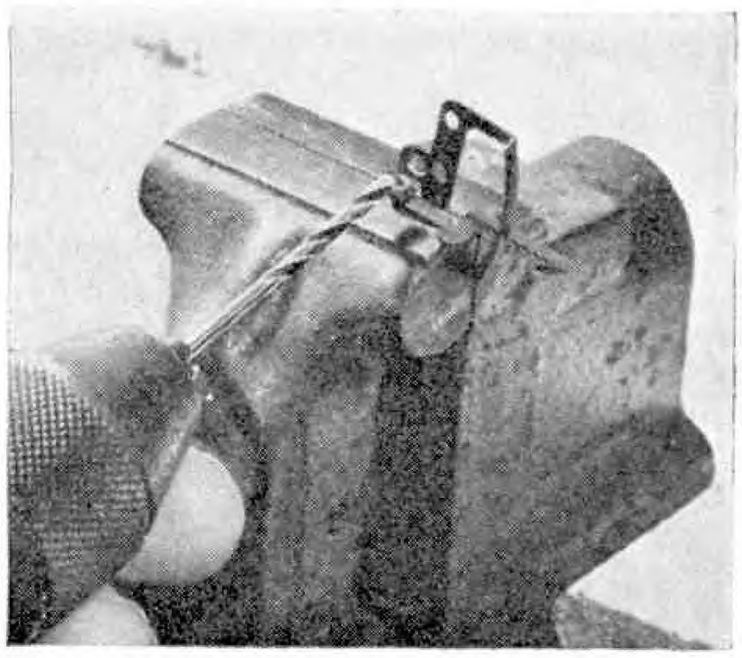
The width of saw cut allows the Triang coupling to be slid between the two pieces of metal and nut and bolted as before.

The types of Coaches requiring this form of modification are Nos. 4083, 4081, 4082, 4070, 4060, 4062, 4054, 4055, 4049, 4047, 4037, 4048, 4036, and 4026. It will be also found that most of the older coaches not now listed in the Hornby-Dublo catalogue will have to be treated in this manner.

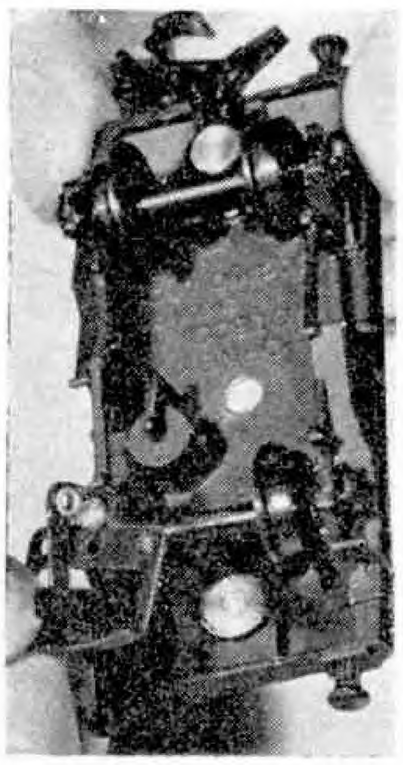


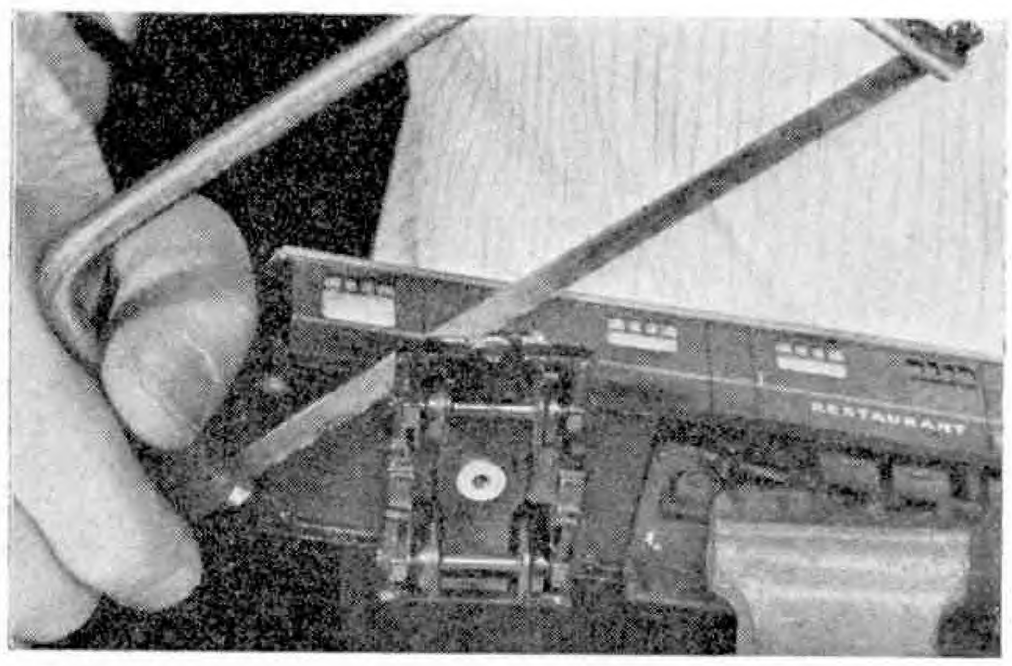
The beginning of the conversion starts with the removal of the wagon chassis from its housing. This is often done by removing the bolt at the bottom of the chassis, although where rolling stock with tinplate bodies are concerned, clips will have to be prised up at the sides and ends of the vehicle





Left: Once the wagon body has been removed, the rivet holding the coupling in place can be drilled out with a No. 43 bit. This should be done from the top of the wagon and not the bottom. Right: The Triang Coupling is then drilled as shown here for the retaining screw which will later be added





Left: The screw is inserted through the hole in the Coupling and pushed through the hole at the end of the wagon. An 8BA nut is then used to secure the coupling to the wagon from the upper side, and any surplus shank is sawn off. Right: In the case of many Hornby-Dublo Coaches, the bogie end will have to be sawn as shown here. This is to allow the Triang Coupling to slide into the end of the bogie through the actual saw cut

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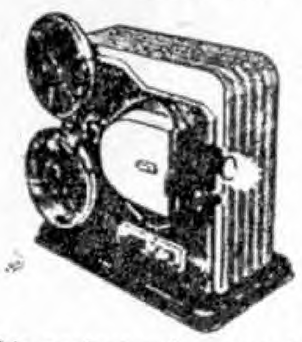
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Scalextric

PLANNING A RACEWAY LAYOUT

In this new series of articles, 'Pit-Man' hopes to give you some ideas and hints on how to get the most fun and excitement from your Scalextric Model Motor Racing equipment . . .

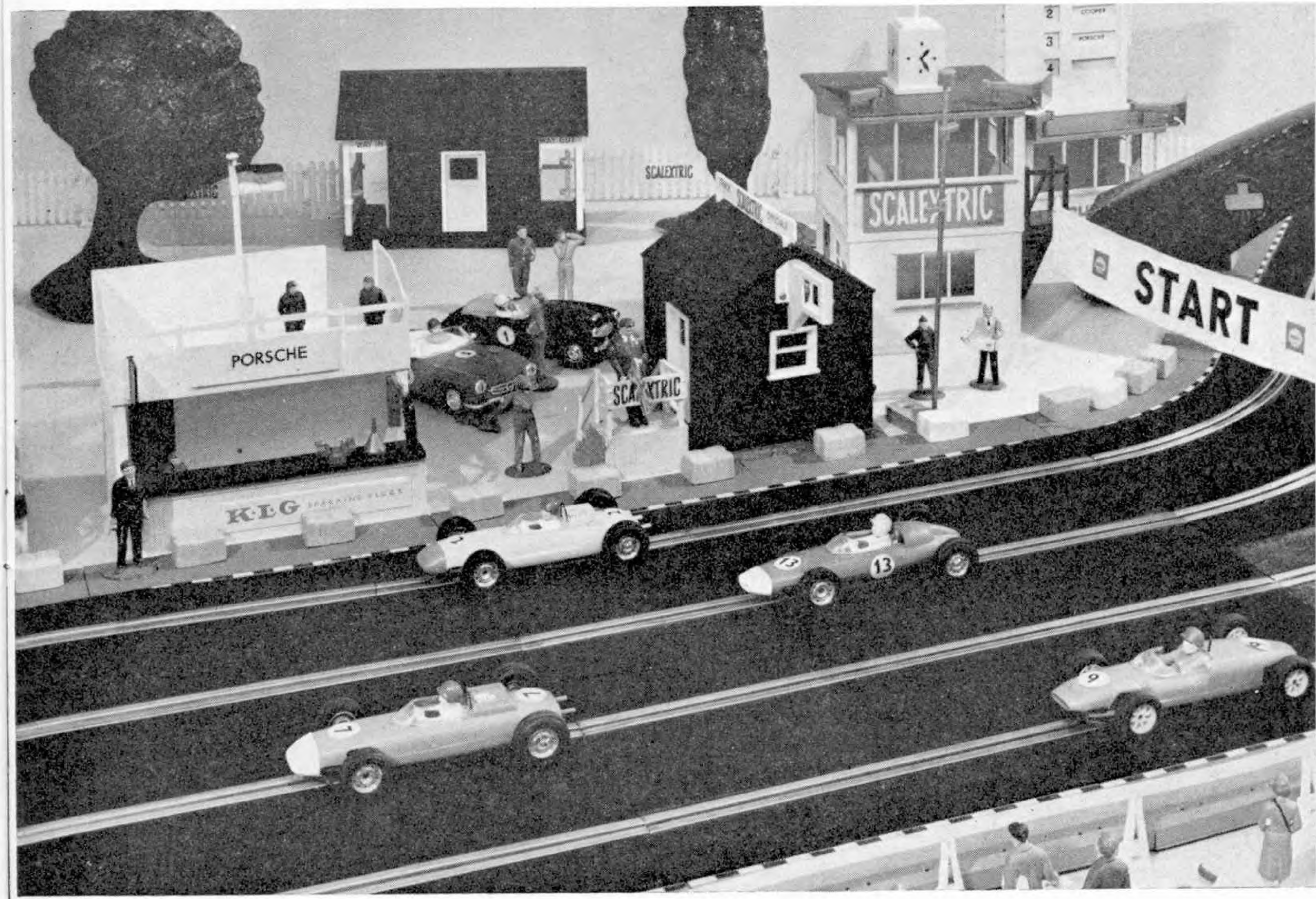
ALTHOUGH enthusiasts had for some time experimented with the idea of slot racing, it was not until Minimodels Ltd. had produced their first set, that the idea was made practicable and open to everyone. Now, as we all know, with the vast collection of accessories available, the variations of circuits with Scalextric are limitless.

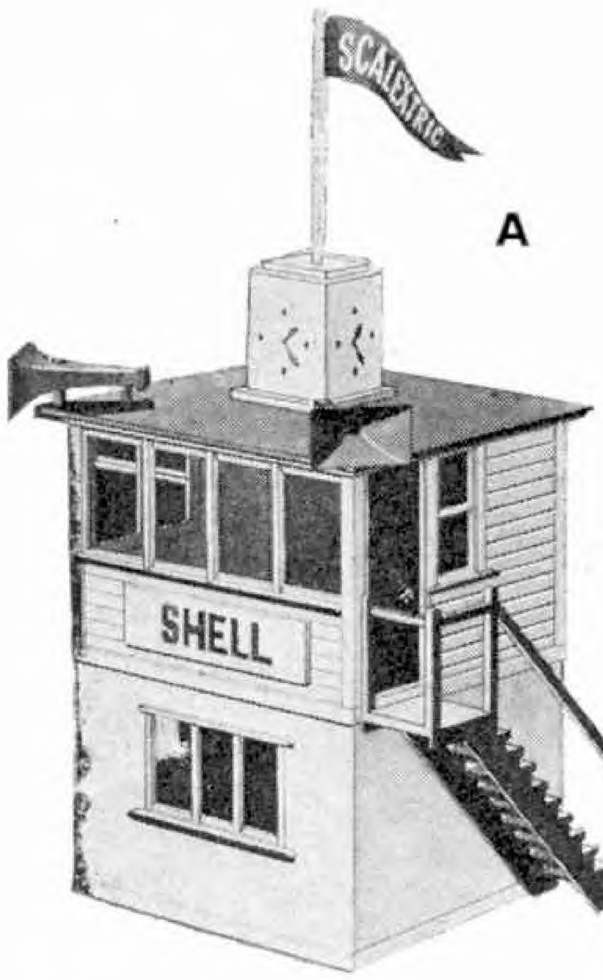
Take the track itself. With the variety of lengths of straight track and the various curves of different radii, circuits can be laid to race two, four or six cars together and to simulate almost any of the world-famous racing circuits. The chicane at Goodwood and the 'Esses' at Le Mans are in the catalogue of realistic pieces of track.

Because of the flexibility of Scalextric track, accurate banking and bridging can be attained, whilst the easy-to-fix, interlocking crash barriers, help to stop the enthusiast from 'running out of road'. Whilst set track plans are available, I find it more fun when setting up a new circuit, to play it 'off the cuff'.

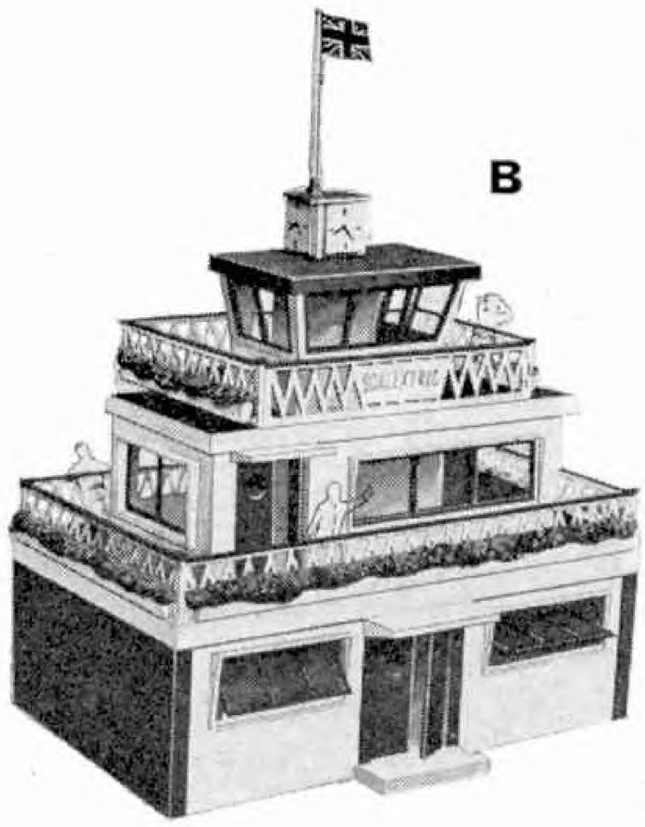
Taking into consideration the space available, I lay out the longest section of straight possible; this provides the Start and Finish and a good length of fast track for making up time.

If you have a Flyover Set, then work from both ends at the same time, taking them in different directions. By using the same number of curves from each end you can then, by trial and error with your straights, place your Flyover just where you want it. Incidentally, by using a cross-over system, you do ensure that each lane measures the same distance, which is most important when needle

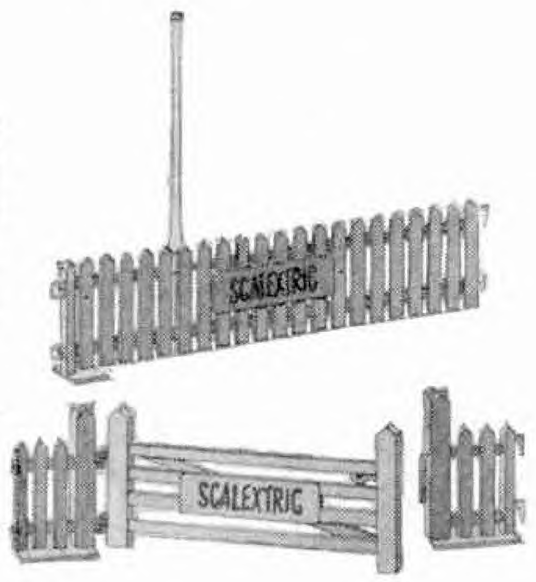




A



B



C



D



E

A. Control Tower 12s. 6d.

B. Control Centre (Kit Form) 17s. 6d.

C. Five-Bar Gate and Posts 1s. 6d.

Paling Section with Pole 10d.

D. Television Tower and Crew 12s. 6d.

E. Timekeepers' Hut 19s. 11d.

matches and accurate timing are concerned.

If you are not using a Flyover, you will still work from both ends but, in this case, curve both ends in the same direction towards each other. The curves are all geometrically correct so, if you have difficulty in making both ends meet, a brief inspection of the layout will show you where the insertion of a piece of straight will correct this.

Don't try to twist or stretch your track, for if it is correctly laid it will fit together exactly. Now you have laid the track, it is advisable to check it for continuity. Connect up to the power unit and slowly run a car round each lane before fitting any banking units or crash barriers. If there is a stoppage, inspect the connection where the stoppage occurs and you will probably find dirt or a slightly bent connection piece which, after cleaning or reshaping, will work perfectly.

Decorating the track

The track is now ready and all we have to do is to add the buildings and decorations etc., to create the atmosphere. If you have visited a racing circuit, you will have noticed that the greatest attraction is near to the Start and Finish and also that this is where the administration and control buildings are situated. In the same way, this is where you should start on your own layout.

First, the Starting Grid. Place this about a third of the way up the main straight and erect your Start/Finish banner. If you prefer, you can sling this from wire which is suspended between the two supports—I find that ordinary household 5 amp fuse wire is most suitable.

The Starter should now take up his position by the banner and the thread from his flag arm run under the track to the outer edge. If you can manage to use the tiny slots in the edge of the straight sections of track to ensure its free running, so much the better.

Next to the Starter comes the Timekeeper's Hut, with the battery fitted ready to give the 3 minute, 2 minute and 1 minute warnings.

Further along the track on the right-hand side are the pits—the Scalextric Track Officials and Pit Crew sets will help you to decorate these authentically. The Control Tower usually lies back off the track a little, but still in this central position. After the drivers leave the start they go 'out into the country' and buildings are not so important.

True-to-life track

Whilst talking about buildings, you will find that when these are viewed from the other side of the circuit, the number of white, blank spaces spoil the effect. I find that to cover these with 'advertisements' adds reality. All you need to do is to cut out the trade signs and names from the Scalextric brochure or labels off 'Coke' bottles and paste them on the backs of your buildings. At last the circuit is beginning to look alive.

One of the most popular and interesting places at any race track is the Paddock, so there must be one on any layout. Cordon off an area within the perimeter of the circuit with fencing. I find that the Scalextric Paling sections are most effective as they interlock and stand on their own and can be erected to any shape.

If you have any odd pieces of track, lay them in the Paddock and mount all your surplus cars and spare parts. Whatever figures you may have, together with any coaches and caravans, will all help to set the scene. The Paddock is always one of the centres of interest and is in a constant bustle of excitement, with crowds of enthusiasts watching the last-minute tuning of the racing cars.

There is always a variety of tents and marquees at race meetings and these can very easily be made by cutting out the four walls in one piece of old linen, then the roof. Starch them and dry them, then put them together, adding tiny guy ropes and flags. These can then be used for refreshments and restaurants, etc.

The circuit is now almost ready for racing.

Make sure that the track is clean and free from dust, that the slots are clear and the metal edges are not dirty. It is a good idea to run a slightly oiled duster over the metal before you begin.

Next month, I shall deal in detail with the cars and their maintenance. In the meantime, remember that the most common troubles with Scalextric racing are due to dirt and dust. Therefore, keep all your equipment clean as it saves a lot of time and trouble in the long run.

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MECCANO

DINKY TOYS AND TRIANG-HORNBY

MONORAIL IN MECCANO

by Spanner

RECENTLY, on the front cover of Meccano Magazine, there appeared a photograph of the Disneyland/Alweg monorail. Although the model described here doesn't actually represent the Alweg vehicle, it was the Disneyland/Alweg photograph which inspired me into building the model.

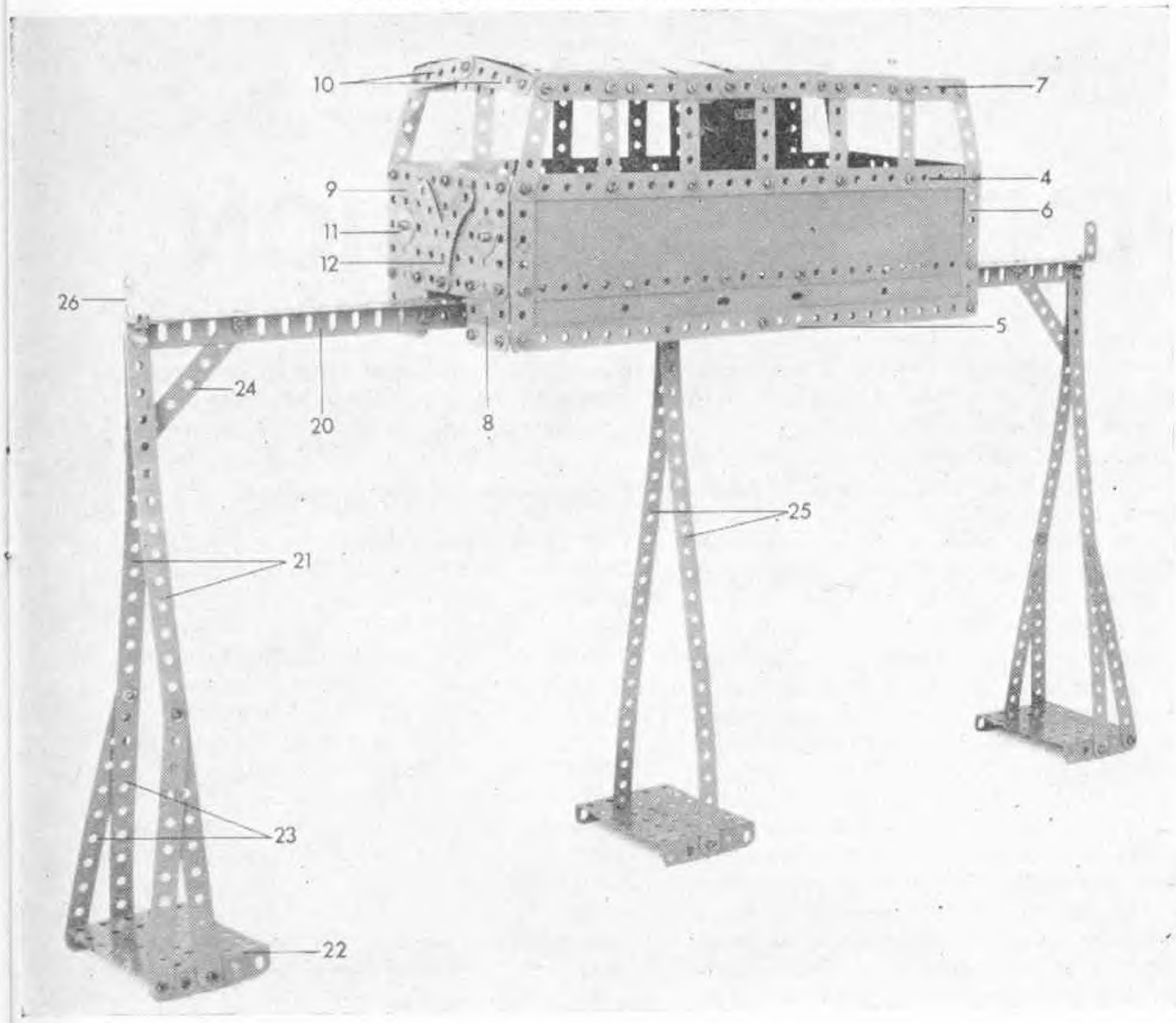
The monorail is not by any means a brand-new idea, for in Wuppertal, Germany, a monorail has been running for over 30 years. However, it is only in the recent, traffic-congested years, that serious thought has been given to the monorail system in this country.

Undoubtedly, a major cause of congestion in cities are the cars of commuters and shoppers, who are forced to travel by car because of a slow public transport system. Monorails, however, running from the outskirts to the city centre, would not only provide a fast and efficient service, but would have the added advantage of being built above ground and so would not seriously impede existing road networks. Also, little actual groundspace would be required and it would only be necessary to demolish a little property to make way for the railway supports to carry the trains above the buildings.

On the other hand, if high-speed motorways were built into the centre, a great deal of valuable property would need to be cleared away, chaos would be caused to traffic while work was in progress and parking space would still need to be provided for all the traffic still entering the city centre. With a monorail, people forced to travel part-way by car would leave their vehicles at the terminus, where parking space would be readily available, and finish their journey in comfort.

As mentioned, the Meccano Monorail is not based on any of the real-life systems already in use, but it works extremely well. It is easy to build and power is supplied by a No. 1 Clockwork Motor. Construction is as follows:

The completed monorail carriage on a sample section of track



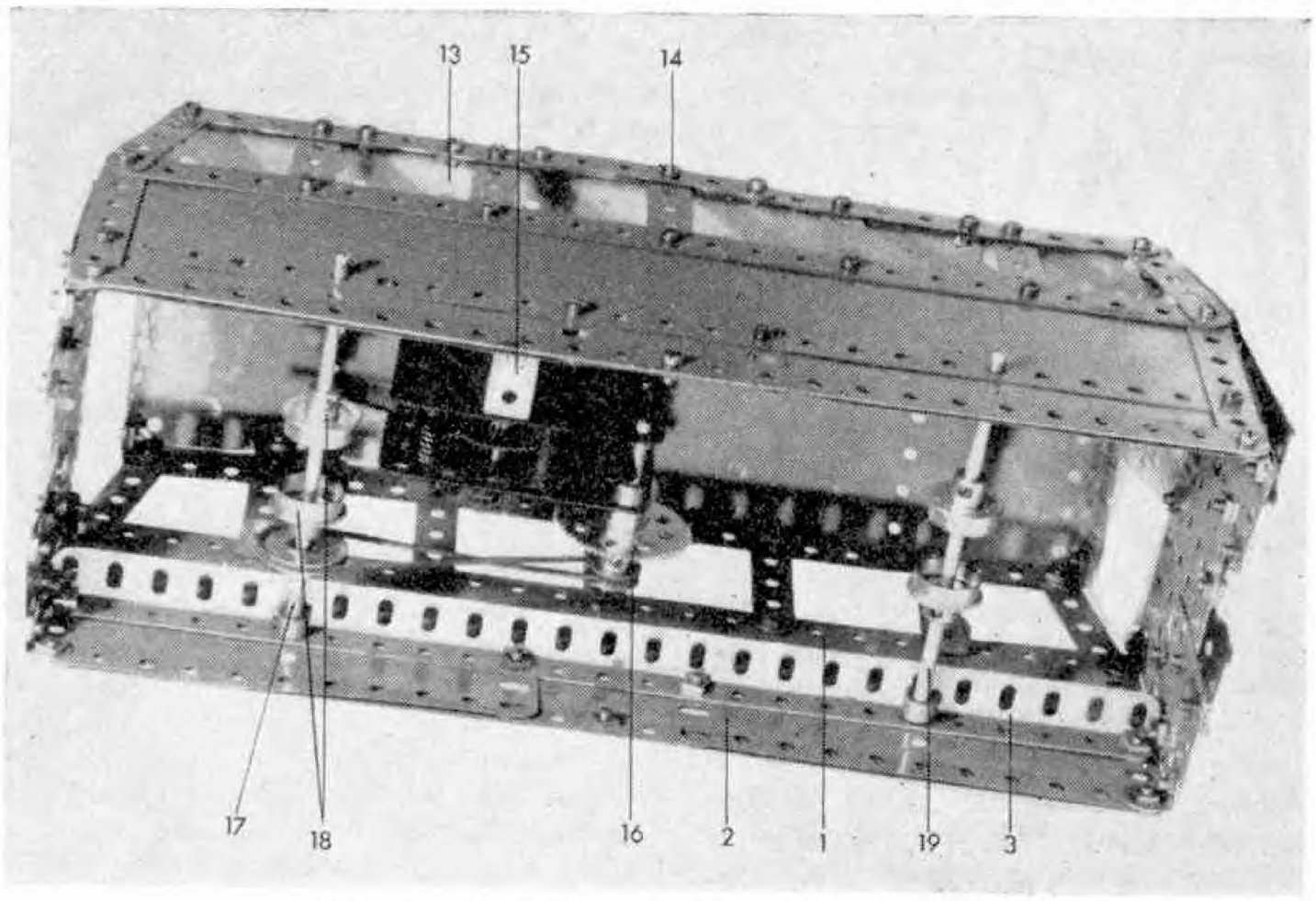
Body construction

Each side is similarly built. A 12½in. by 2½ in. Strip Plate 1 and a 12½ in. by 1½ in. compound strip plate 2, formed from a 2½ in. by 1½ in. and two 5½ in. by 1½ in. Flexible Plates, are fixed to a 12½ in. Angle Girder 3. The whole is then edged along the top and bottom by 12½ in. Strips 4 and 5, and down the sides by 3½ in. Strips 6.

The Bolts holding Strip 4 in position also secure, in order from left to right in the second illustration, a 2½ in. Strip, a 2½ in. by ½ in. Double Angle Strip, three 2½ in. Strips, another 2½ in. by ½ in. Double Angle Strip and a final 2½ in. Strip. All these are joined at the top by a compound 11½ in. strip 7, made up from a 3 in. and two 5½ in. Strips.

Both the front and back of the model are also similarly constructed. A 2½ in. by 1½ in. Flexible Plate 8 overlayed at the bottom by a 1½ in. Strip, is fixed to each side by Angle Brackets and the two are then connected by a 4½ in. by 2½ in. Flat Plate 9. In addition, this Plate is attached to the sides by Angle Brackets at its upper corners, at the same time fixing the windscreen in position.

At one end, the windscreen is formed from two 2½ in. by 2½ in. Transparent Plastic Plates while, at the other, it is



The underside of the monorail showing the drive motor

represented by a 4½ in. by 2½ in. Transparent Plastic Plate. Both screens are edged at the top by two 2½ in. Strips 10, joined to the sides by Angle Brackets.

Some detail can be added to the ends of the model. We bolted two ¾ in. Washers 11 and two 2½ in. Curved Strips 12 to one of the 4½ in. by 2½ in. Flat Plates 9 to represent headlamps and radiator-grille, but this is not essential.

Forming the roof

The roof is simply formed from a series of six 5½ in. by 2½ in. Flexible Plates, bent to shape and bolted between the sides, as shown.

Motor and drive

Two 1½ in. by ½ in. Double Angle Strips are secured to left-hand compound strip 7. One of these can be seen at 13 while the other is held by Bolt 14. A No. 1 Clockwork Motor is bolted to the spare lugs of the Double Brackets and is braced by a 1 in. by 1 in. Angle Bracket 15, connected to one Angle Girder 3 by a Fishplate.

A ½ in. Pinion on the Motor output shaft is in constant mesh with a 57-teeth Gear 16 on a 2 in. Rod, mounted in the Motor side plates and held by a Collar.

Also fixed on the Rod is a ½ in. Pulley connected by a 6 in. Driving Band to a 1 in. Pulley secured on a 5 in. Rod 17 held by Collars in Girders 3. Also fixed on Rod 17 are two ¾ in. Flanged Wheels 18. Another two ¾ in. Flanged Wheels are mounted on a second 5 in. Rod 19 held by Collars in Girders 3.

Elevated rail

The length of track is, of course, limited only by the number of parts you have available. For illustration purposes we built up a short section from four 12½ in. Angle Girders 20, two sets of two being formed into two 'T' girders. The two sets are 'butt jointed' by a 12½ in. Strip bolted between each side of the 'T' girders.

Each end support is obtained from two 12½ in. Strips 21 fixed to a 3½ in. by 2½ in. Flanged Plate 22. The Strips are braced at the bottom by two 5½ in. Strips 23 and at the top by a 3½ in. Strip 24. The intermediate support is simply built from another two 12½ in. Strips 25, bolted to a 3½ in. by 2½ in. Flanged Plate. All supports, incidentally, are secured to the rail by ⅜ in. Bolts. A stop to prevent the car running off the rail is provided at each end by a 1 in. by 1 in. Angle Bracket 26.

Parts required :—

11 of No. 1	4 of No. 20b	5 of No. 59
8 of No. 2	1 of No. 22	2 of No. 90
6 of No. 3	1 of No. 23a	3 of No. 111c
2 of No. 4	1 of No. 26	1 of No. 186a
14 of No. 5	1 of No. 27a	6 of No. 188
4 of No. 6a	112 of No. 37a	4 of No. 189
6 of No. 8	109 of No. 37b	6 of No. 192
1 of No. 10	2 of No. 38d	2 of No. 193a
17 of No. 12	2 of No. 48	1 of No. 193c
3 of No. 12a	4 of No. 48a	2 of No. 197
2 of No. 15	3 of No. 53	1 No. 1 Clockwork Motor
1 of No. 17	2 of No. 53a	

INDEPENDENT SUSPENSION

by Spanner

ONE of the advantages of modelling with Meccano is that you can reproduce many of the intricate mechanical details to be found inside the original object in the Meccano model. For example, the differential at the rear and the steering system at the front of a Meccano model car can be made to work just like the real units! Therefore, if you are building a model car, you will find this feature very useful. Full instructions are given for a combination of two very useful mechanisms, an independent suspension unit, coupled to a rack and pinion-type steering system, built by Mr. A. Macfarlane, of Godstone, Surrey.

Construction principles

It must be remembered, however, that the combined mechanism has been produced purely to illustrate the principles involved. It was not designed for a specific model and therefore, may need modifying if you wish to include it in any of your own constructions.

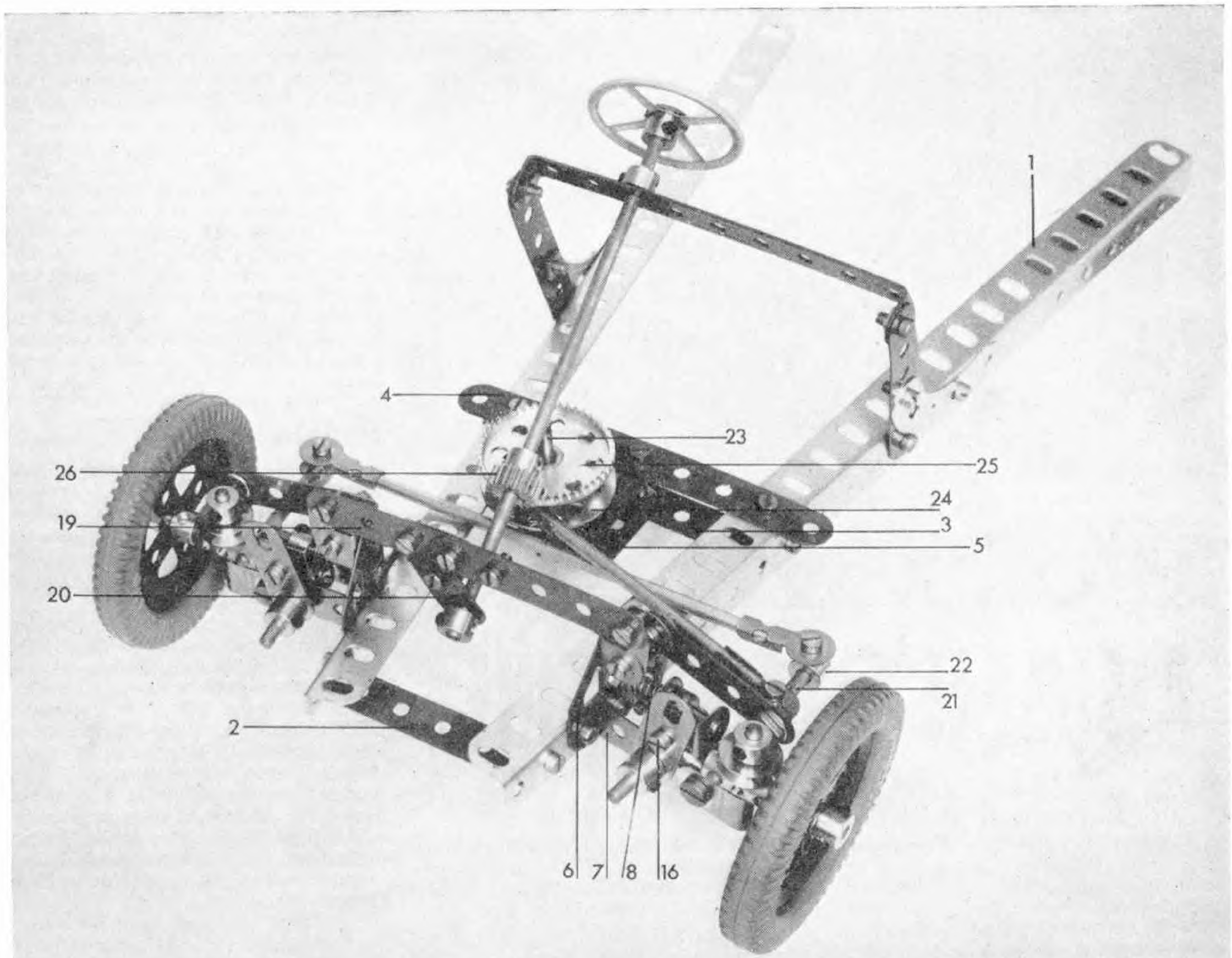
There are two chassis members, each formed from a 12½ in. Angle Girder 1, connected by a 2½ in. by ½ in. Double Angle Strip 2, a 3½ in. by ½ in. Double Angle Strip 3, and a 4½ in. Strip 4. A Channel Bearing 5 is bolted to Strip 4 and Double Angle Strip 3.

Both actual suspension units are similarly built. A Flat Trunnion 6 is bolted to Girder 1, at the same time fixing a 1 in. by ½ in. Double Bracket 7 and an Angle Bracket 8 in place. A 1½ in. Rod, carrying a Crank 9 and a Coupling 10 is journalled in the end holes of Double Bracket 7, then a right-angled Rod and Strip Connector 11 is attached to the other end of Coupling 10 by a Pivot Bolt held in the transverse bore. Fixed in the Rod and Strip Connector is another 1½ in. Rod which carries a second Coupling 12, mounted through its centre transverse bore, a ½ in. loose Pulley and a Collar 13.

Compression spring

A Long Threaded Pin 14, carrying a Compression Spring, a Double Bracket 15 and a Collar is secured to Flat Trunnion 6. Note that the Collar is positioned between the lugs of the Double Bracket in such a way that the Spring normally keeps the inside lug pressed against the Collar. A Bolt 16 is held in the arm of Crank 9 by a Nut and its shank is fitted through the hole in the back of Double Bracket 15, but it is not held by another Nut.

Also bolted to Flat Trunnion 6 is another Double Bracket 17. Lock-nutted to its rearmost lug is a 2 in. Strip 18, the other end of which is attached to Collar 13 by a Bolt screwed into one transverse

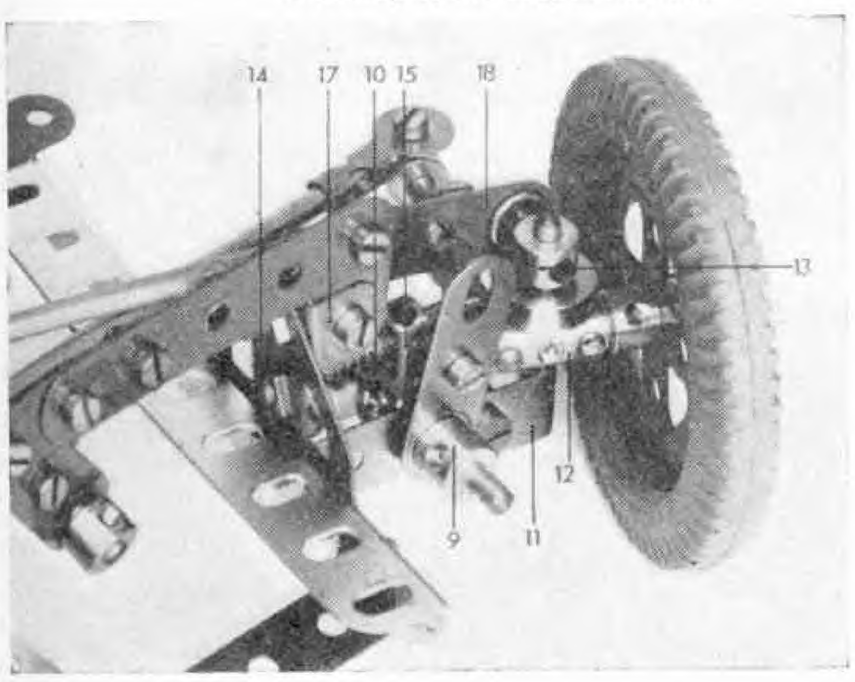


Independent suspension and steering unit design in Meccano and for use in building steerable model cars

tapped bore. The Strip must be free to move on the Bolt and a Nut on its shank, tightened against the Collar, makes this possible.

A 1 in. Rod is secured in the longitudinal bore of Coupling 12. Loosely mounted on this is a 2 in. Pulley with Tyre, a Collar holding it in position, to serve as the road wheel. A Fishplate is then bolted to the free lug of Double Bracket 17 on each unit, and the two are connected by a compound 4 in. strip 19, made up from two $2\frac{1}{2}$ in. Strips. At the same time, a 1 in. Triangular Plate, extended along one side by a $1\frac{1}{2}$ in. Strip 20, is fixed in position.

Close-up of the suspension unit



Steering linkage

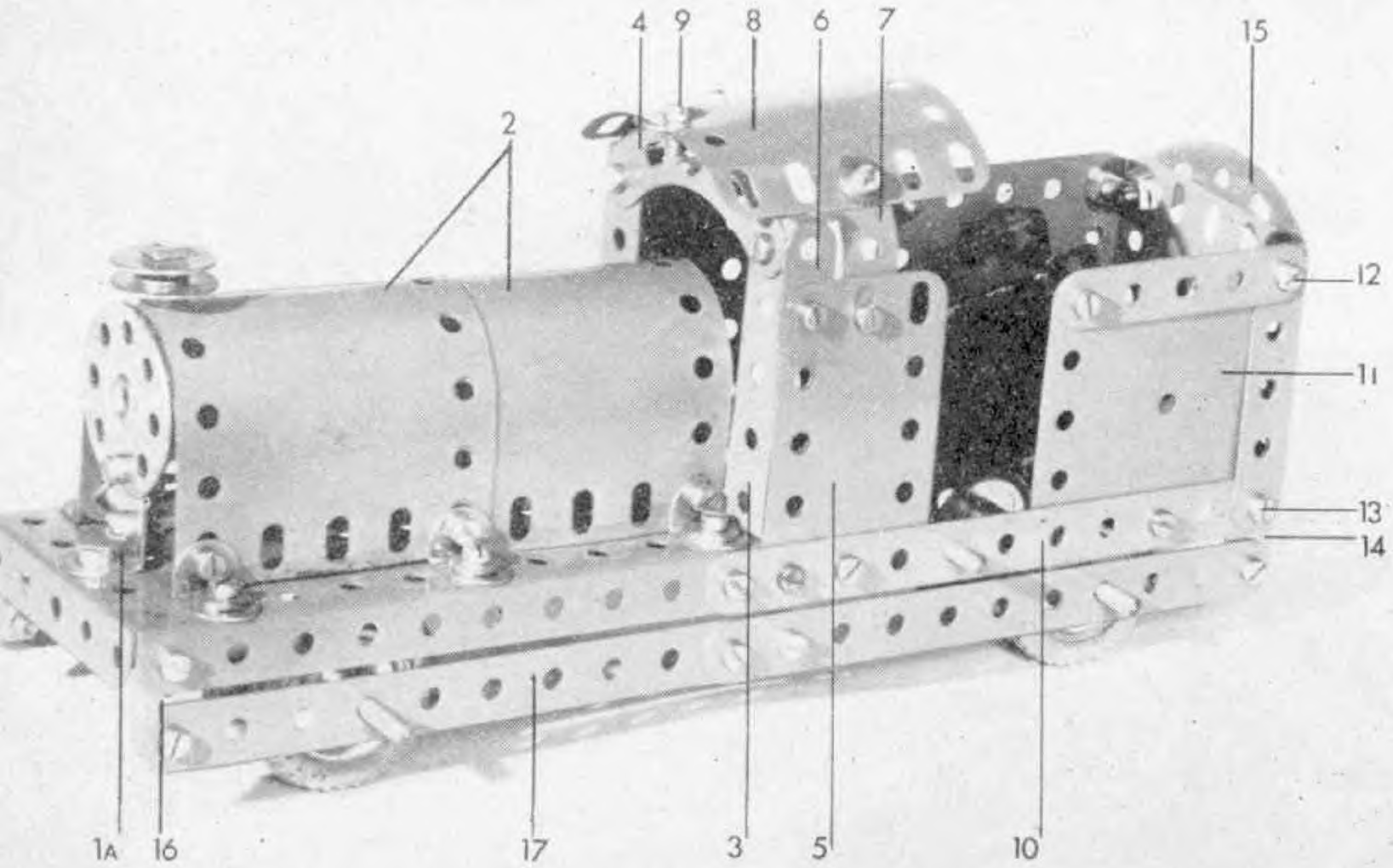
Mounted in the inside transverse bore of each Coupling 12 is a 2 in. Rod 21, which carries a Collar 22 at its end. The left-hand side Rod also carries a Collar at its centre. Collars 22 are joined with the help of Rod and Strip Connectors, by a 5 in. Rod.

Another 2 in. Rod 23 is journalled in Channel Bearing 5, being secured by an eight-hole Bush Wheel 24 above the Bearing and a Collar beneath it. A $1\frac{1}{2}$ in. Contrate Wheel 25 is added, then Bush Wheel 24 is connected to the Collar in the centre of left-hand side Rod 21 by a $3\frac{1}{2}$ in. Rod held in Rod and Strip Connectors.

Two 3 in. Strips, bolted to the chassis, and each braced by a $2\frac{1}{2}$ in. Stepped Curved Strip, are joined by a $4\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strip. Mounted in this Double Angle Strip and $1\frac{1}{2}$in. Strip 20 is a $6\frac{1}{2}$ in. Rod, held by Collars, that carries a Steering Wheel and a $\frac{1}{2}$ in. Pinion 26. This Pinion is in constant mesh with Contrate 25.

Parts Required :—

1 of No. 2a	4 of No. 18a	12 of No. 59
2 of No. 4	2 of No. 18b	2 of No. 62
2 of No. 5	2 of No. 20a	4 of No. 63
2 of No. 6	2 of No. 23	1 of No. 77
1 of No. 6a	1 of No. 24	2 of No. 90a
2 of No. 8	1 of No. 26	2 of No. 115a
2 of No. 10	1 of No. 28	2 of No. 120b
4 of No. 11	44 of No. 37a	2 of No. 126a
2 of No. 11a	46 of No. 37b	2 of No. 142a
2 of No. 12	10 of No. 38	2 of No. 147b
1 of No. 14	1 of No. 48a	1 of No. 160
1 of No. 15	1 of No. 48b	1 of No. 185
1 of No. 16	1 of No. 48b	4 of No. 212
3 of No. 17	1 of No. 48c	2 of No. 212a



An easy to build model of a Steam Locomotive powered by a Meccano Magic Motor

A SIMPLE STEAM ENGINE

by Spanner

MECCANO parts have been used many times to build models of steam locomotives, some of them very complicated. However, the steam engine shown in our photographs is quite simple to construct and can be built with parts that are available in most Meccano Sets. The model is representative of many of the smaller steam engines that once existed and for the sake of simplicity, complicated valve gear has been omitted. The model described here is propelled by a Meccano Magic Motor and it runs along the ground similar to a car. The building instructions are as follows:

A 5½ in. by 2½ in. Flanged Plate 1 has seven Angle Brackets bolted to its upper surface, three on each side, together with a ½ in. Reversed Angle Bracket at the front. Two 4½ in. by 2½ in. Flexible Plates 2 are bent to shape and bolted to the Angle Brackets to form the boiler. Two 2½ in. by ½ in. Double Angle Strips 3 are then bolted to the back of the Flanged Plate and are connected by a 2½ in. Stepped Curved Strip 4.

Cab construction

A cab is built up from two 2½ in. by 1½ in. Flexible Plates 5 to each of which two 5½ in. Strips 6 and 7 are bolted. The upper ends of Strips 7 are bent inwards and then joined by a 2½ in. by 2½ in. Curved Plate 8. Fixed to the front of this Plate by Bolt 9 is a ½ in. Reversed Angle Bracket. The whole assembly is then bolted to Flanged Plate 1, at the same time securing a 5½ in. Strip 10 in place and the centre step of the Reversed Angle Bracket is fixed to Curved Strip 4.

Bolted to Strip 10 at each side is a 2½ in. by 2½ in. Flexible Plate 11, which is overlayed along its upper and lower edges by two 2½ in. Strips. Bolt 12, securing these Strips, also holds an Angle Bracket in position, while Bolt 13 holds an Angle Bracket and a Fishplate 14. A 2½ in. by 2½ in. Plastic Plate edged by a 2½ in. Strip at the bottom and a 2½ in. Stepped Curved Strip 15 at the top, is bolted to the Angle Brackets, thus completing the coal bunker. Bolted to Fishplate 14 and a similar Fishplate 16, fixed to Flanged Plate 1, is a compound 10 in. strip 17, formed from two 5½ in. Strips.

Attached to the sides of the bunker are two Double Brackets 18, to which is bolted a Semi-circular Plate. One end of a Meccano Magic Motor is fixed to this Plate while the other end is mounted on a 3½ in. Rod 19, journalled in Strips 10 and held by Spring Clips. Another 3½ in. Rod carrying a 1 in. fixed Pulley 20, a 1 in. loose Pulley with Tyre held by a Spring Clip and a 1 in. fixed Pulley with Tyre 21, is journalled in compound strips 17, four holes from the rear of the model.

Model drive

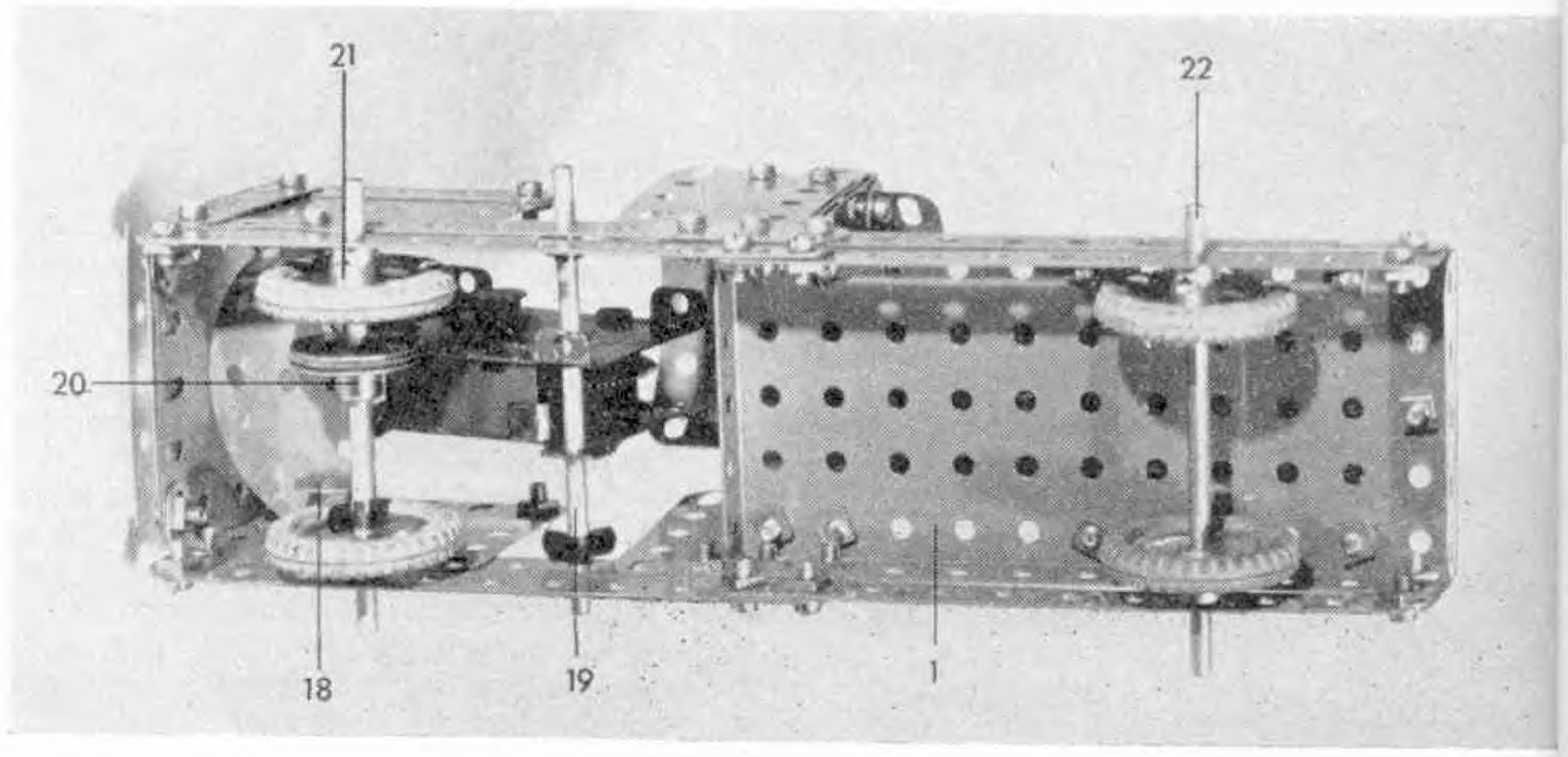
The Pulley on the Motor output shaft is joined to Pulley 20 by a 2½ in. Driving Band. A third 3½ in. Rod 22, on which two 1 in. fixed Pulleys with Tyres are secured, is also mounted in strips 17, this one being situated four holes from the front of the model.

All that now remains to be added are the chimney and smokebox 'door'. On real-life locomotives the latter opens, but I am afraid that on our model, it remains closed. A ½ in. Bolt with its shank pointing upwards, is fixed in the front Plate 2 by a Nut. Now mounted on the shank, in order, are a Washer, a ¾ in. Washer, another Washer, a Nut and a second ¾ in. Washer, all held in place by a final Nut. A Fishplate is then bolted to Reversed Angle Bracket 1A and bolted to this, in turn, is an eight-hole Bush Wheel.

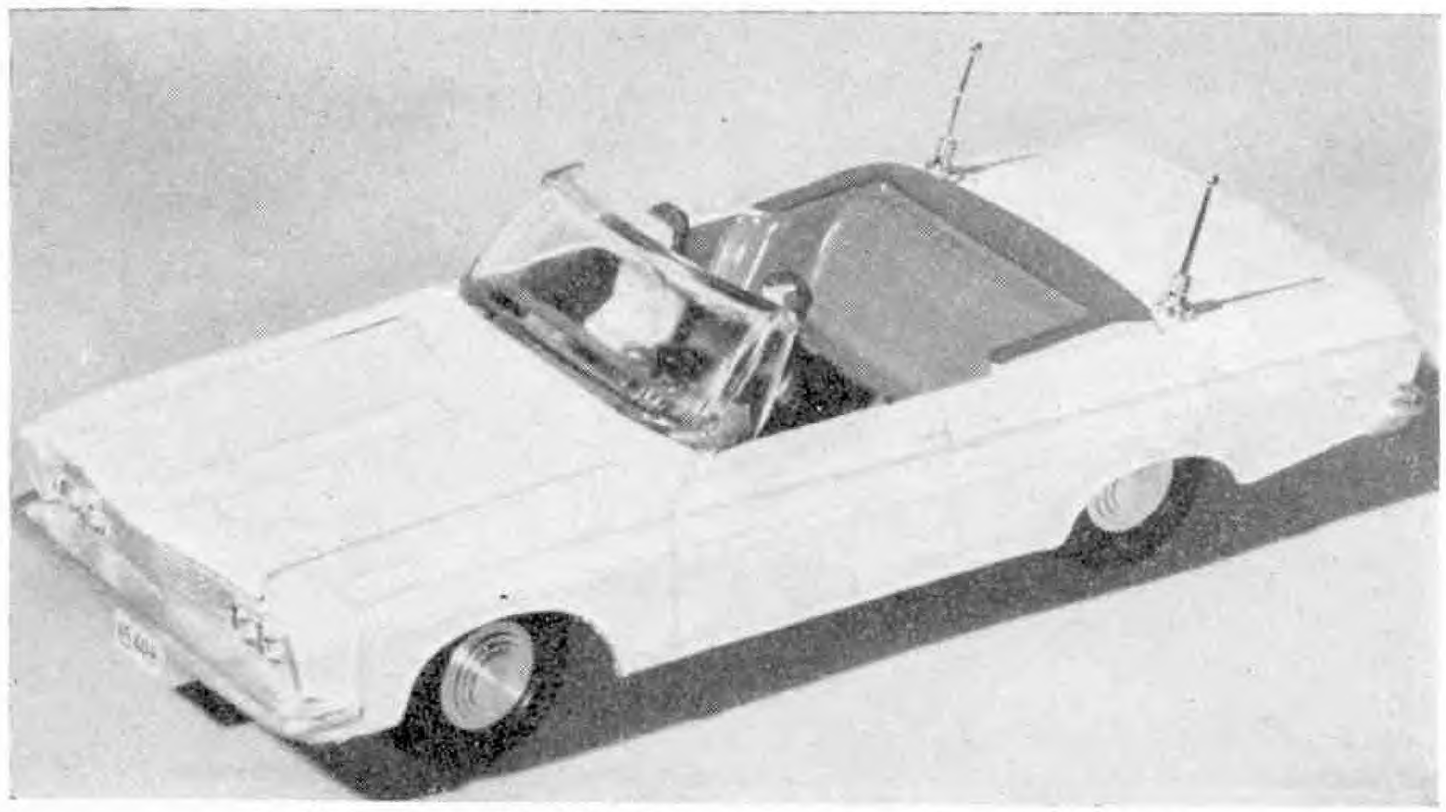
Parts required:

6 of No. 2	3 of No. 35	2 of No. 125
9 of No. 5	61 of No. 37a	4 of No. 142c
5 of No. 10	58 of No. 37b	1 of No. 186
2 of No. 11	10 of No. 38	2 of No. 188
10 of No. 12	2 of No. 38d	3 of No. 190
3 of No. 16	2 of No. 48a	2 of No. 192
4 of No. 22	1 of No. 52	1 of No. 194
1 of No. 22a	2 of No. 90a	1 of No. 214
1 of No. 24b	1 of No. 111a	1 Magic Motor

An underneath view of the model showing the Motor fixture and drive



Dinky Toys News by **Chris Jelley**



The Dinky Toy model of the Plymouth Fury Sports Car—model No. 115.

NEW ROAD ROLLER & SPORTS CAR

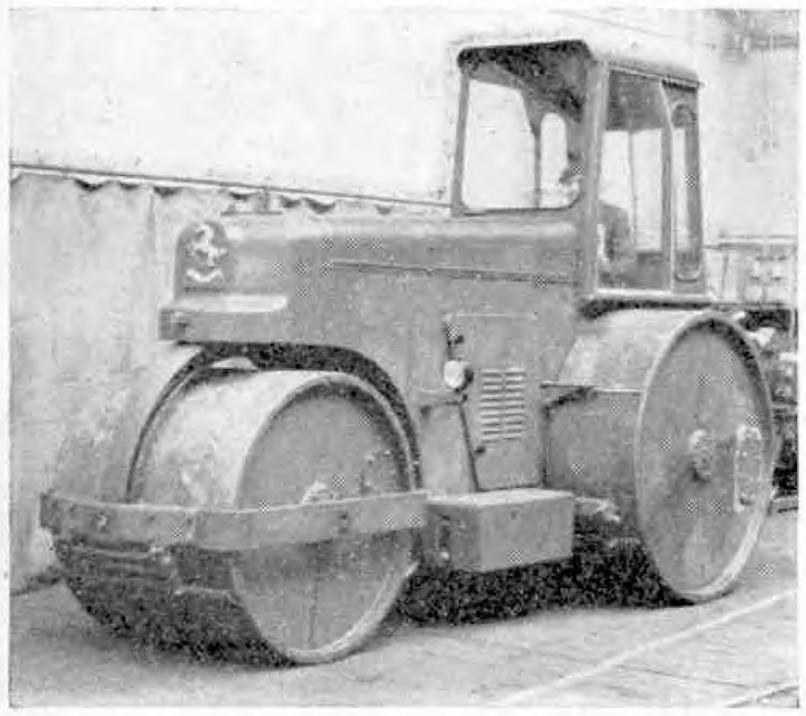
ROAD rollers are fascinating machines. Like railway locomotives, however, they are another example of how diesel power has replaced steam in large and heavy machinery. Several years ago, mention of a road roller would have conjured up visions of a huge black monster, belching forth smoke and smuts as it moved ponderously backward and forwards, flattening smoking asphalt to the accompanying hiss of escaping steam. Nowadays, we tend to imagine an equally fascinating, but far less terrifying, diesel 'monster', chugging almost quietly about its duties, accompanied only by an occasional clank from its rollers.

As you may know, diesel road rollers come in two basic sizes, a large version generally used for roads or substantial tarmaced areas and a small version, used on paths etc. This month's first new Dinky Toy release is based on a large machine produced by Aveling-Barford Ltd., of Grantham, Lincs., and a splendid model it is, too! Not only does it faithfully reproduce the lines of the original, but it also has many intriguing additional features.

Not least of these is something which has never before been incorporated in a Dinky Toy—built-in engine noise! A cleverly-designed 'clicker unit', acting on the rear axle, has been fitted which simulates the sound of an engine when the model is pushed either backwards or forwards. Also, the inspection panels, at each side of the body, open to reveal some engine detail and the big front roller not only swivels through 360 degrees, but also tilts to left or right, depending on the nature of the ground over which it is travelling. The rollers are die-cast in Mazak.

Turning to the cab, windows are fitted all round and the two side windows are sliding and can be opened and closed. Inside, there is a steering wheel, handled by a driver, smartly dressed in blue overalls. Finish is in a typical bright orange colour with the rollers green. Rough overall dimensions are length $4\frac{9}{16}$ in., width $1\frac{13}{16}$ in., height $2\frac{11}{16}$ in., wheelbase $2\frac{1}{2}$ in.

The real-life Aveling-Barford Roller





Dinky's new Aveling-Barford model No. 279

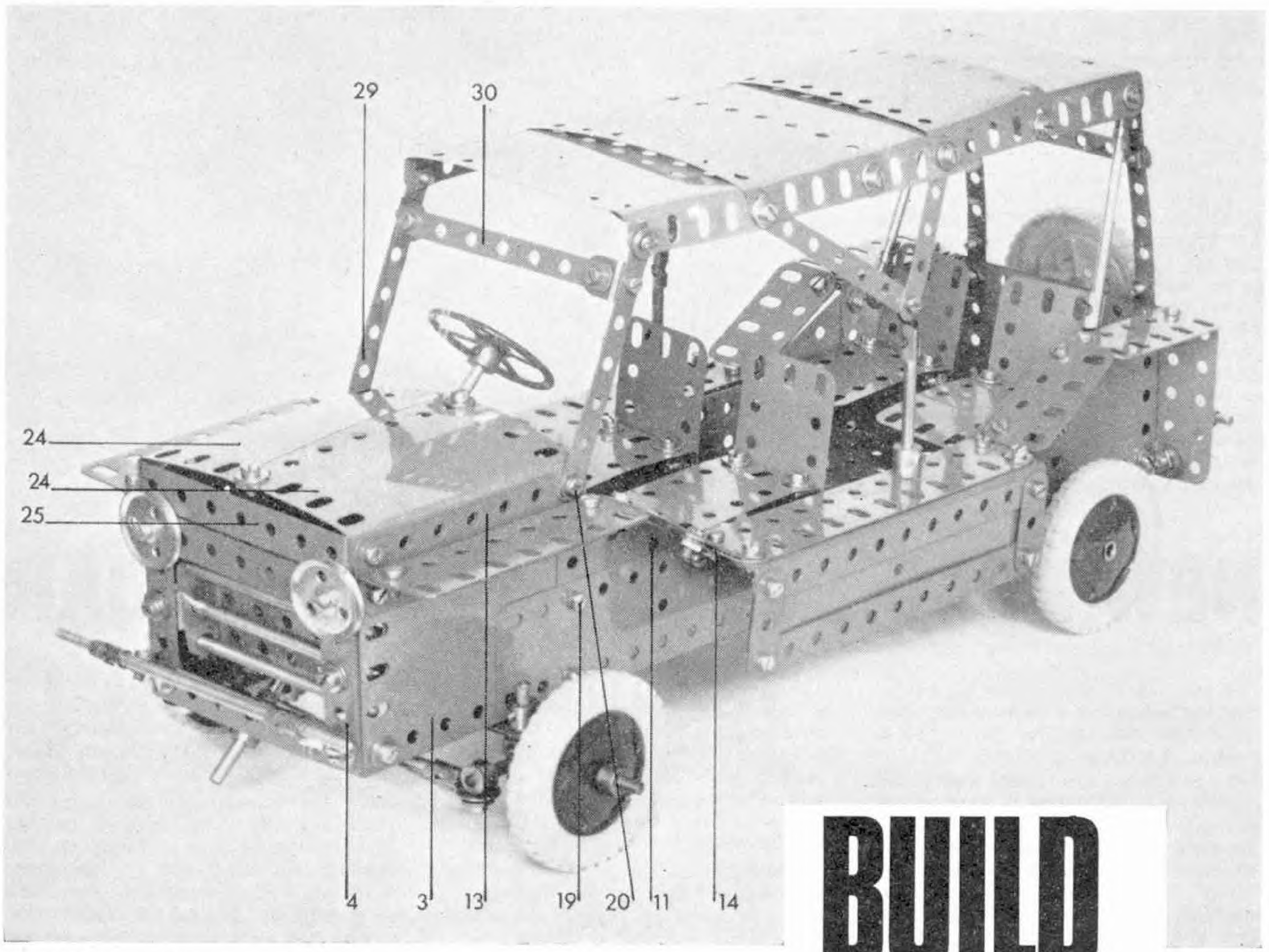
American car release

Moving on to our second new release, we have the Plymouth Fury Sports, Dinky Toys No. 115. This is basically the Plymouth Fury Convertible, already in the range, minus the removable hood and with a few extra refinements added. Most striking of these are the headlamps.

On the Convertible, the lamps are plain representations, marked on the body casting, whereas on the Sports they are twin-jewelled. Other innovations are a driver, a lady passenger, American-style number plates, the new wheel centres and two 'chrome' radio aerials, one on each of the rear wings. Standard features include Prestomatic steering, four-wheel suspension, opening bonnet, detailed engine, windscreen, seats and steering wheel. Finish is in an ivory gloss with red seats and grey simulated folded hood.

For those of you who are interested in the technical specifications of the real car and who did not see my article in these pages at the time the Convertible was released, I will repeat them here. As you may know Plymouth is now part of the Chrysler organisation, one of America's great motor-manufacturing concerns, and the Fury is the lowest-priced of Chrysler's 'large cars'. Motive power is obtained from an eight-cylinder o.h.v. engine of 5,130 c.c. capacity, developing 305 b.h.p. which gives the car a top speed of 130 m.p.h. and a cruising speed of 100 m.p.h. Transmission can be either manual or automatic, but in both cases there are three forward gears.

I said earlier that the Fury is one of Chryslers large cars—and it really is a big one! Overall dimensions are: length, 16 ft. 10 in.; width, 6 ft. 3 in.; height, 4 ft. 6 in.; wheelbase, 9 ft. 8 in. The unloaded or 'kerb' weight is 30 cwt. ($1\frac{1}{2}$ tons) which, by British standards, is a hefty weight for a private car.



BUILD A MINI-MOKE

by Spanner

WHAT would you say is the most popular car on our roads? Two or three years ago, you would probably have chosen the Morris Minor 1000, but the position has changed. Nowadays, there seems to be far more B.M.C. Minis about than any other single vehicle. Of course, there are several different versions of the Mini—Morris, Austin, etc., but they are so much alike that they can be classed as one—all, that is, except the Mini-Moke.

The Moke is not as well known as the ordinary saloon, although it is still definitely a Mini. If you call the saloon a town car, then the Moke could be described as its country cousin. It is ideal for farmers and countrymen, being built along the lines of a jeep and equipped with four-wheel drive.

The Meccano model described here is based on the Mini-Moke and closely follows the basic outlines of the actual car. A simple but very effective steering arrangement is fitted, that is worth keeping in mind for inclusion in future models of your own. Building instructions are as follows:

Chassis and Body

Both sides being similar, only one side of the model will be described. A 12½ in. Angle Girder 1 is extended by a 3½ in. Angle Girder 2, overlapped three holes. To the front of the Angle Girder 2 is bolted a 3½ in. by 2½ in. Flexible Plate 3 and a 2½ in. Angle Girder 4. Two 5½ in. by 1½ in. Flexible Plates 5 and 6 and a 2½ in. by 2½ in. Flexible Plate 7 are secured to Angle Girder 1, then a 2½ in. Angle Girder 8 and a 5½ in. Angle Girder 9 are fixed to the top of the Plates, as shown, the same bolts also holding a 2½ in. by 1½ in. Triangular Flexible Plate 10 in position. A similar Triangular Flexible Plate 11 is bolted to the Flexible Plates 3 and 5, at the same time adding a 3½ in. Angle Girder 12 and a 3½ in. Flat Girder 13.

Respective Flat Girders are bolted to the Angle Girders 8, 9 and 12, then two additional 2 in. Flat Girders 14 are secured to the same Angle Girders by Obtuse Angle Brackets. A 5½ in. Angle Girder 15, to which a 5½ in. by 1½ in. Flexible Plate edged by two 5½ in. and two 1½ in. Strips is attached, is now bolted to the 5½ in. Flat Girder fixed to Angle Girder 9. A 1 in. Corner Bracket 16 is bolted to Angle Girder 1 to serve as a bearing for the rear axle.

Both sides having been built, they are joined together by two 5½ in. by 3½ in. Flat Plates 17 and a 5½ in. by 2½ in. Flat Plate 18 held by Angle Brackets. With the bolts 19 and 20 a 3½ in. by 2½ in.

Flanged Plate, not shown in the illustrations, is also fixed between the sides, being held by Bolts 19 and 20.

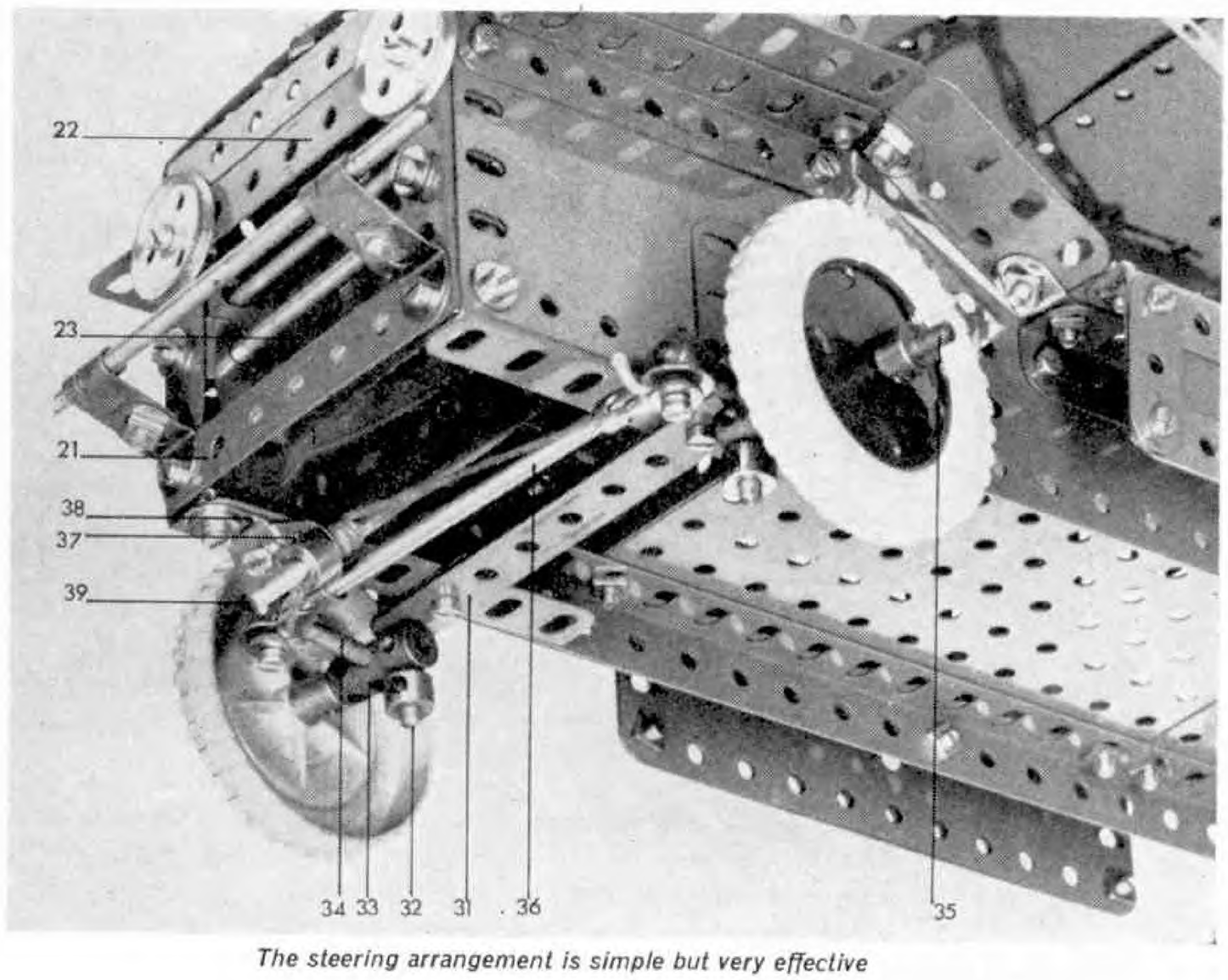
Two 3½ in. Strips 21 and 22 are secured to the 2½ in. Angle Girders 4, the Bolts holding Strip 21 also holding two Angle Brackets in place, while those fixing Strip 22 secure two 1 in. loose Pulleys which represent headlamps. A 2½ in. by 1½ in. Flanged Plate 23, supporting three 3½ in. Rods held in position by Spring Clips, is attached, by Angle Brackets on the centre Rod, to Angle Girders 4.

Two 3½ in. by 2½ in. Flexible Plates 24, bent to shape, are joined together and fixed to Flat Girders 13. The radiator is completed by a 3½ in. by ½ in. Double Angle Strip 25, bolted between the sides, as shown.

Towing bars are represented by 5 in. Rods held by Right Angle Rod and Strip Connectors bolted, at the front, to the Angle Brackets held by the Bolts holding Strip 21, and, at the rear, to Angle Brackets attached to Flat Plate 18. Also bolted to Flat Plate 18 are two 4½ in. Narrow Strips 26 connected by a 3½ in. Narrow Strip 27 and a 3½ in. by 2½ in. Transparent Plastic Plate 28. A 2½ in. Road Wheel, fixed by a ¾ in. Bolt to Plate 18, represents the spare wheel.

Two 3½ in. Narrow Strips 29, held by Bolts 20, are joined by another 3½ in. Narrow Strip 30 with the help of Angle Brackets, at the same time fixing a 3½ in. by 2½ in. Transparent Plastic Plate in position to serve as the windscreen. Five 4½ in. by 2½ in. Flexible Plates, with their edges bent over at right angles, are attached to the Narrow Strips to form the roof. Supporting the roof in the centre are a 3½ in. and a 2½ in. Narrow Strip bolted to a Rod and Strip Connector fixed on a 2 in. Rod held by a Rod Socket. A 3 in. Rod, mounted in two Rod and Strip Connectors, supports the roof at the rear.

The seats are built up from a 2½ in. by 1½ in. Flexible Plate attached by Angle Brackets to a similar Plate that is fastened to the model side also by an Angle Bracket.



The steering arrangement is simple but very effective

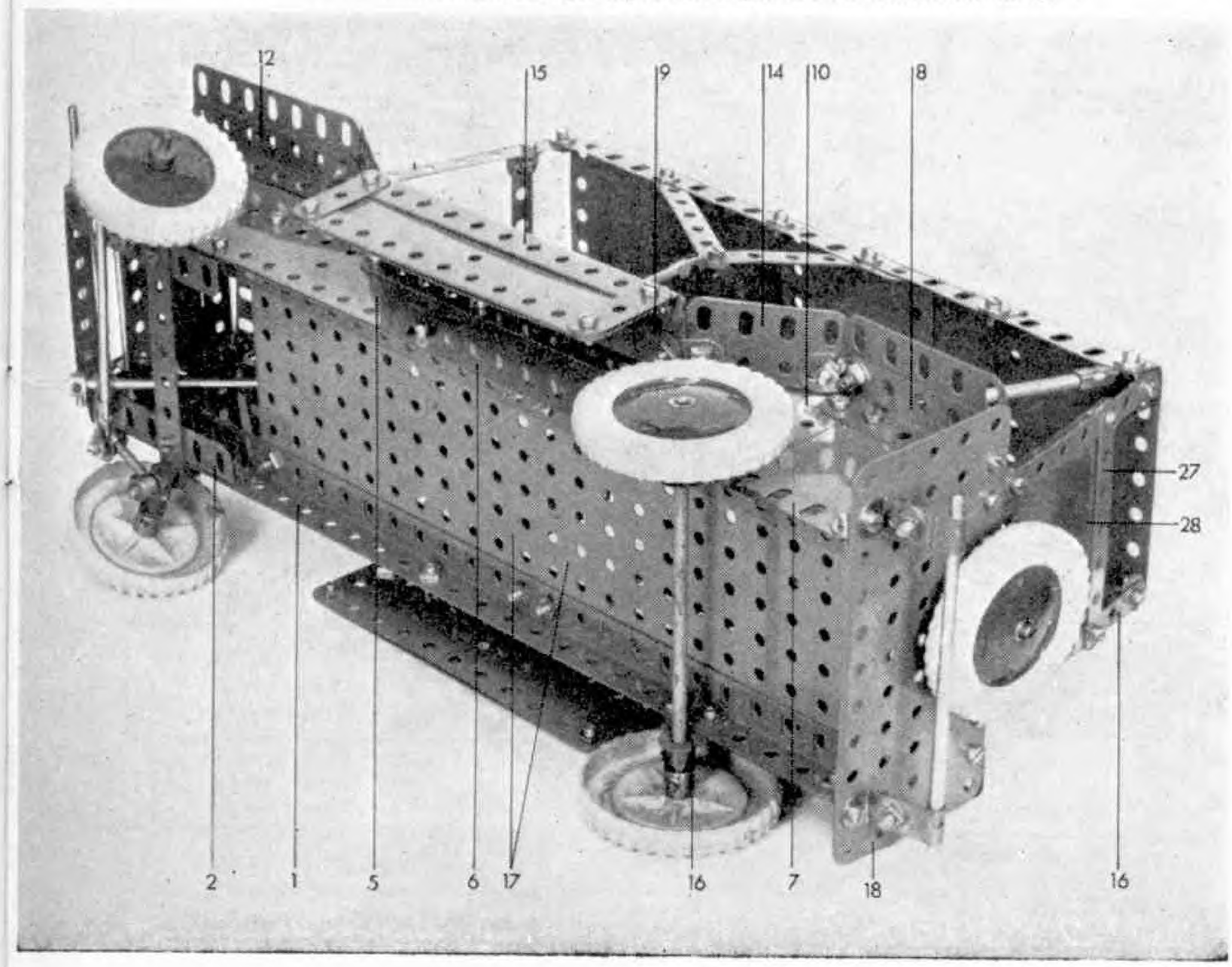
Steering Assembly

A 4½ in. Strip 31, with a Crank at each end, is secured to the Angle Girders 2. In each Crank a 1½ in. Rod 32 is fastened, then Couplings 33, carrying 1½ in. Rods 34 and 35, are mounted loosely on the Rods 32, being held in place by Collars. Rod and Strip Connectors are fixed on the ends of a 4 in. Rod 36, and are each attached to the Collars on the Rods 34 by a ⅜ in. Bolt, carrying a Washer.

Next, a Fishplate 37 is bolted to an Obtuse Angle Bracket 38 secured to the Angle Girder 2. A 6½ in. Rod 39 is journalled in the second hole from the top and side of the 3½ in. by 2½ in. Flanged Plate held by Bolts 19 and 20, being held in place by a Steering Wheel 39 and a Collar. A length of Cord is tied to one of the ⅜ in. Bolts, is wound three times around the Rod 39 and is fastened tightly to the other ⅜ in. Bolt.

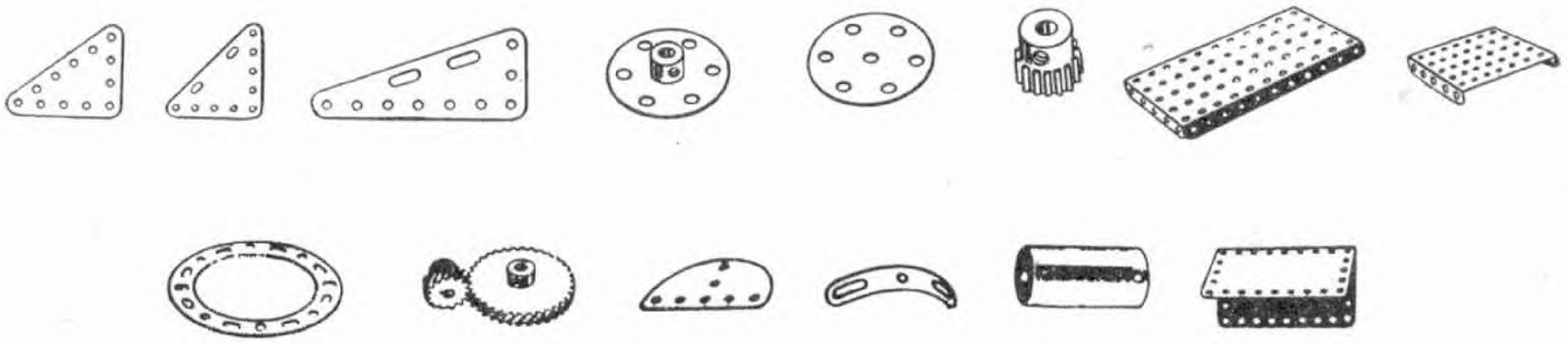
Both rear wheels are 2½ in. Road Wheels, mounted on a 5½ in. Rod journalled in 1 in. Corner Brackets 16. Similar front wheels are held by Collars on the Rods 35.

There is no complicated gearing or drive system to the Mini-Moke model



Parts required:

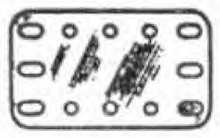
2 of No. 2	2 of No. 22a	2 of No. 111c
1 of No. 2a	6 of No. 35	2 of No 133a
2 of No. 3	135 of No. 37a	2 of No. 179
4 of No. 6a	134 of No. 37b	1 of No. 185
2 of No. 8	37 of No. 38	5 of No. 187
4 of No. 9	1 of No. 48b	8 of No. 188
4 of No. 9b	1 of No. 51	6 of No. 189
4 of No. 9d	2 of No. 52a	2 of No. 190
1 of No. 10	1 of No. 53	4 of No. 190a
22 of No. 12	10 of No. 59	5 of No. 191
9 of No. 12c	2 of No. 62	2 of No. 193b
1 of No. 14	2 of No. 63	8 of No. 212
1 of No. 14a	1 of No. 70	2 of No. 212a
2 of No. 15	2 of No. 103	4 of No. 221
3 of No. 16	4 of No. 103d	2 of No. 235a
2 of No. 16b	2 of No. 103f	6 of No. 235b
2 of No. 17	4 of No. 103g	2 of No. 235d
6 of No. 18a	1 of No. 111	

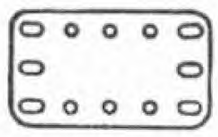


Dealers who specialise in Meccano spare parts

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can, of course, order Meccano spare parts for their customers, but those listed here are among our spare part specialists.

C. G. MARSHALL
Maxwell Road
BEACONSFIELD
Telephone: 1092





WILTONS SPORTS AND GAMES
Corner Canal and Queen Street
SALISBURY
Telephone: 2984

TETT'S THE IRONMONGERS
402 Wimborne Road
Winton, BOURNEMOUTH
Telephone: Winton 309

H. SALANSON & CO. LTD.
83-85 Fairfax Street
BRISTOL 1
Telephone: 2-6185

BARRETT'S LTD.
2 St. George's Street
CANTERBURY
Telephone: 6161

GORDON EASTON & CO.
40 Lowther Street
CARLISLE
Telephone: 22947

R. M. HILL & SONS
36/40 Castle Street
CARLISLE
Telephone 21621 and 21122

W. PAINE & CO. LTD.
168 High Street
CHATHAM, Also at Strood and Grays
Telephone: 45215

DOLL'S HOSPITAL (YOUNGSTERS)
55 Hallgate
DONCASTER
Telephone: 2831

THE GUILDFORD
DOLL'S HOSPITAL LTD.
13 Swan Lane, GUILDFORD
Telephone: 61331

LUCAS'S (Hobbies) LTD.
7 Tarleton Street
LIVERPOOL 1
Telephone: Royal 7562

H. A. BLUNT & SONS LTD.
38 Fretherne Road
Welwyn Garden City, Herts.
Telephone: Welwyn Garden 26884

JEREMY
16 Princes Arcade, Piccadilly
LONDON, S.W.1
Telephone: Regent 1846

F. T. B. LAWSON LTD.
New George Street
City Centre, PLYMOUTH
Telephone: 65363

LANE'S TOY SHOP
75 High Street
ROCHESTER
Telephone: Chatham 41870

JOHN W. BAGNALL LTD.
18, Salter Street,
STAFFORD
Telephone: 3420

LESLIE BROWN
Super Toy and Model Store
95 High Street, Stockton-on-Tees
Telephone: 67616

L. A. RICHARDS LTD.
92 The Broadway,
Wimbledon, S.W.19.
Telephone: LIBerty 1155

OVERSEAS DEALERS

AUSTRALIA

Jack Stanbridge's Hobby Shop
54a Canning Highway
Victoria Park, PERTH, W. Aust.
Telephone: 61-1668

NORTH SHORE HOBBY CENTRE
(Mail Order, Parts and Sets)
8 Post Office Street
Pymble (SYDNEY) N.S.W.

Walther & Stevenson Pty. Ltd.
395 George Street
SYDNEY
Telephone: 29. 3566

NEW ZEALAND

BUNKERS LTD.
P.O. Box 58
HASTINGS
Telephone: 84-283 (Mail orders welcomed)

use meccano magazine

Classified Columns for your Sales/Wants/Swops

MECCANO MAGAZINE is the best medium for selling your old train set, stamp collection or any other item which is no longer of use to you but of possible use to others Also, if you are short of an item for your collection, why not search for it by advertising in Meccano Magazine?

The cost is 4d. per word. (minimum 4s. 0d.) No box numbers. No trade ads.

Simply write each word of your advertisement in the spaces below (capital letters), cut out this quarter page and send it with your remittance to:— Classified Advertisement Dept., Meccano Magazine, St. Alphage House, Fore Street, London, E C.2.

Sales/Wants/Swops (*Strike out which is not applicable*)

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24

If you require further words please continue on another sheet of paper.

Advertisement Enquiry Service

July

A list of advertisements in this issue of MECCANO MAGAZINE is given below. If you would like further information on any of the products and services advertised, please tick in the appropriate space, fill in the coupon and return to us.

- ☐ Ashford
- ☐ Archer
- ☐ Basikits
- ☐ Birkdale
- ☐ Beck
- ☐ Battstamps
- ☐ H.M.S. Conway
- ☐ Coventry Eagle Cycles
- ☐ Dunlop
- ☐ Foton
- ☐ G.B. Cycles*
- ☐ Granville Lucas
- ☐ H.A.C.
- ☐ Hinton
- ☐ Home-Radio
- ☐ Johnsons of Hendon
- ☐ Keilkraft
- ☐ King Charles
- ☐ Kodak
- ☐ Lang
- ☐ Midland Bank
- ☐ Morley
- ☐ Meccano (Dinky Toy)
- ☐ Meccano (Super Skates)
- ☐ Meccano (Hornby Hoverer)
- ☐ Meccano
- ☐ Lines Bros. (Spot on)
- ☐ Minimodels
- ☐ Newnes
- ☐ Pritchard (Peco)
- ☐ Pritchard (Magazines)
- ☐ Proops
- ☐ Radiostructor
- ☐ Rearden Smith
- ☐ Revell
- ☐ Revell
- ☐ Seccotine
- ☐ Southgate
- ☐ T. H. Smith
- ☐ Viking Cycles
- ☐ Warne
- ☐ White
- ☐ Ripmax
- ☐ P.X. Technical Supplies

To: Meccano Magazine, St. Alphage House, Fore Street, London, E.C.2.

NAME .....

ADDRESS .....

.....

* *Please enclose 6d. for postage* (*G.B. Cycles only*)

car outline COMPETITION

50 Dinky Toy Models to be won!

Fill out the form, tear out the page and send it to us. The names of the senders of the first 50 correct answers will be published in the next issue of Meccano Magazine. The winners will then be expected to write to us to claim their prize. The competition will be judged by the editor of Meccano Magazine. His decision will be final and no correspondence can be entered into.

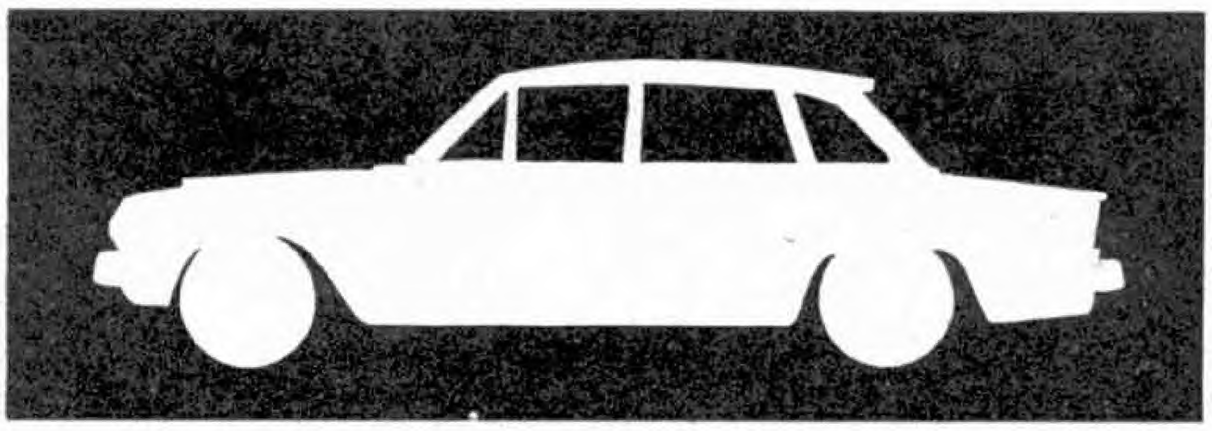
N.B. Don't forget to make use of the Advertisement Enquiry Service and the Sales/ Wants/Swops form at the same time. All for the same postage.

To:—Meccano Magazine: Competition C, St. Alphage House, Fore Street, London, E.C.2.

The vehicle illustrated is:—

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NAME .....

ADDRESS .....

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EXCITING MODERN ISSUES!

Our BARGAIN DISCOUNT APPROVALS offer a fine range of modern and new issues at reasonable prices and a generous discount off purchases. Br. Colonials only or Whole World available. Prompt, personal service. Approvals or details post free one way. **Postal Business Only. No Callers.**

THE BIRKDALE STAMP COMPANY
104, Liverpool Road, Southport, Lancashire

FREE! Four New Issues Pitcairn Is. FREE! This latest 1964 New Issue of Q.E.II colourful pictorials absolutely **FREE** to all applicants for my popular 'MARVEL' Approvals enclosing 6d. towards cost of postage, etc. Tell your parents.

FREE. Two large Monaco New Issue Olympics with all orders for the following pkts: 25 Ceylon, **1/6**; 100 China, **1/4**; 50 Egypt, **2/3**; 500 Hungary, **18/6**; 100 Iraq, **7/6**; 25 Israel, **2/3**; 100 Malaya, **6/9**; 25 Malta, **2/9**; 100 N. Zealand, **7/6**; 100 Switzerland, **5/10**; 100 U.S.A., **3/9**; post EXTRA.

W. GRANVILLE LUCAS, (MP!) HINCKLEY, Leicestershire

SERIOUS COLLECTORS SHOULD SEND FOR SELECTION OF FIRST-CLASS APPROVALS STATING CHIEF INTERESTS
H. B. LANG, 3 Brooklyn Avenue
South Norwood, London, S.E.25

SPECIAL SPRING OFFER
69 Colonial and Foreign Stamps FREE, includes from Zanzibar, Monaco, Congo, Ghana, Virgin Islands, Gibraltar, Fiji, etc. Entirely FREE to applicants requesting to see my selected approval books and enclosing 4d. postage.
WHITE STAMPS
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5 SOUTH RHODESIA FREE to everyone ordering one of these PACKETS

25 diff.		50 diff.		100 diff.	
Costa Rica	3/3	Canada	1/6	Australia	6/-
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Sudan	4/6	Swiss	2/-	Peru	10/-

Please tell your parents.
Postage **4d. extra.** C.W.O. LIST FREE.
BATTSTAMPS (SR), 16 Kidderminster Road, Croydon, Surrey.

50 PICTORIAL STAMPS FREE
This packet of stamps is given absolutely FREE to all genuine applicants for my superior used British Colonial Approvals enclosing 4½d. in stamps for postage. Overseas Applications Invited.
D. L. ARCHER (M),
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British Colonial Approvals, sent on 14 days approval. Single Country Books if preferred. Satisfaction and personal service guaranteed.
Ashford, 31A Disraeli Road, Putney, London, S.W.15

CIGARETTE CARDS—700 Illustrations Cat. 2/9
25 Sample Cards, 1/- post free
STAMPS—B.C. New Issues. Details, S.A.E.
T. H. SMITH, Wick Farm, Langport, Somerset.

STAMP DEALERS!!!
Use these columns to advertise your stamp approvals.
It costs only £3 per single column inch.

SALES • WANTS • SWOPS • SALES • WANTS • SWOPS • SALES • WANTS • SWOPS

SALES

• Meccano set No. 10 with E20r Motor, £22. Also Meccano 240 V continuous rated mains motor; offers. Beaumont, 68 Leymoor Road, Longwood, Huddersfield, Yorks.

• "M.M.'s" August 1945, April 1946, August 1945, 1944 (bound year), 1952 to 1960 (six missing). Offers? Douglas, 1 West Catherine Place, Edinburgh, 12.

• Triang Train set, better builder, £2 10s. 0d. each. David Campbell, 9 Marmion Street, Tamworth, Staffs.

• Meccano, almost set 9, good condition, many accessories including two clockwork and one electric motor plus transformer, £15. C. Pipkin, Uphill Denbridge Road, Bickley, Kent.

• Triang series 3, track, inclined piers, sidewalls; good condition. S.A.E. for details to: Bone, "Campions", 5 St. George's Road, Bickley, Bromley, Kent.

• For sale, large Meccano set, combined seven and eight sets, plus many extras; 2 motors. D. Peters, 38 Burton Road, Melton Mowbray, Leics.

• Pre-war European stamps: 100 for 1s. Send S.A.E. Spencer, 8 Burnham Road, Scunthorpe, Lincs.

• Two 1963 Scalextric G.P. cars, good condition, 10s. each o.n.o. Wood, 10 Grange Road, Duxford, Cambs.

• Complete model army. Dinky, Corgi, etc. All excellent condition. Some pre-war. S.A.E. List. Lot sale preferred. A. Webster, 18 Weston Grove, Bromley, Kent.

• Meccano 10, £25; motors, cabinet. 25 Burnbreck Gardens, Wollaton, Nottingham. Tel. 283676.

• Pre-war Dinky, etc. Large stamped S.A.E. for lists. Also wanted, Dinky Tootsietoy, Chad Valley rarities, "M.M.'s", catalogues; whole collections bought; highest prices paid. Write: Wootton, 30 Barchington Ave., Torquay.

• Magic Tricks, books, coins, swoppets, M.M.'s, January '63-December '64; trackside equipment. J. Murray, Ravenbank, Ballygowan, Belfast, N. Ireland.

• Early pre-war and early post-war, and obsolete French dinky-toys and Solido models. Monsieur Jean-Jacques Moreaux, 18 bis rue de Bellefond, Paris IX°, France.

BR Cols. Israel foreign, wants invited advertiser. 15 Queenshill Ave., Leeds 17.

• M.M.'s 1958-59, 5 missing; 1960-64, complete, good condition; 800 cigarette cards. Offers. Procter, 23 Beach Road, St. Anne's, Lancs.

• Football, sports, space; any set free with approvals. Garside (M.M.), 42 Second Street, Wesley Place, Lowmoor, Bradford, Yorks.

• Meccano Magazines, good condition, years 1944 and 1945, bound; offers. Apply Cumming, Rosemount Place, Perth.

• Perfect condition. Lionel Pikes—Peak H.O. model motoring. 22 ft. track, 4 cars, many extras! £15 and shipping. Stuart, 6917 Delongpre, Hollywood 28, California, U.S.A.

• Dinky toys and Supertoys (1950 onwards, no prewar). S.A.E. to J. Kinchen (M.M.), 79 Fortunes Way, Redhampton, Havant, Hants.

• Triang, Britannia, Princess Engines, Coaches, Goods Wagons, Transformer and track. Details. S.A.E. N. Woolley, Selsey Arms, Coolham, Horsham, Sussex.

• Five Czechoslovakian 1964 Olympics free with marvellous discount approvals. Cantle, 41 Canberra Road, Weston-super-Mare, Somerset.

• Stamps, records, tape recorder, camera, film projector, with twelve films, small printing machine, harmonica and metal puzzles; all for sale, all in good condition. Send for price list. I. Walsh, 7 Winmarleigh St., Blackburn, Lancs.

• Large Meccano gauge 0 Hornby train set including one 4-4-2, and two other engines; Dinky toys. B. Riddy, 16 Rydes Hill Crescent, Guildford, Surrey.

• Obsolete Dinky and Supertoys; also M.M.s, Sept. '56-May '60. Wilson, Fieldview, Weeley Heath, Clacton.

• Back numbers of Meccano Magazine from issues dated Jan. 1962 to May 1965 are available at 2s., postage paid, from: Circulation Manager, St. Alphage House, Fore Street, London, E.C.2.

• Offers for: M.M.'s, November 1958 to March 1960, excellent condition, one missing; numerous games, jig-saws, Jacko-skates, Minibrix (approx. 2,000 pieces), £4 o.n.o. Steel, 27 The Spinney, Neston, Wirral, Cheshire.

• Triang 00/HO equipment, two locos, coaches, rolling stock, 60 ft. Super 4 track, points, two controllers; good condition; cost £24, sell £12 o.n.o. Details write (S.A.E.) or phone: P. Ruffle, 12 Brunswick Court, Anerley Road, S.E.19. SYD. 5083.

• Obsolete Dinky Toys, including Buses. S.A.E. Twells, 665 Burton Road, Midway, Burton-on-Trent.

M.M.'s January 1955-August 1963. In M.M. binders. Highest offer over £3 5s. 0d. M. Sterratt, 13 Hillside Avenue, Bromley Cross, Bolton.

WANTS

• Early pre-war and early post-war English Dinky toys models. Monsieur Jean-Jacques Moreaux, 188 bis rue de Bellefond, Paris IX°, France.

• Boys anywhere in world send stamps of your country and I will return same number British. Richard Baylis, 49 Addington Road, West Wickham, Kent.

• Wanted: M.M.'s prior to 1938. Also pre-war Meccano Aeroplane Constructor Outfits and parts for same. Please quote, including postage in dollars. H. Schenck, Jr., RD 4, Potsdam, New York, U.S.A.

• Channel Segments, pat. No. 119, and rubber rings, pat. No. 142. J. B. Forster, 144 Malvern Road, Billingham-on-Tees, Co. Durham.

• Live Steam Enthusiast wants pre-war Meccano steam engine, any reasonable condition. The Rector, Warehorne, Ashford, Kent.

• Obsolete Meccano Parts and Literature. Hackett, 4 Lake Lawnwell Road, Cork, Ireland.

• Wanted, No. 10 Meccano; must be in original Meccano 4-drawer cabinet and in good condition. 14 Bank Top, Southowram, Halifax, Yorks.

• Pre-war mechanical toys, especially trains; no objection to faults if repairable. Butler-Edwards, 1 Chesham Crescent, London, S.E.20.

• Pre-war Dinky trains and Tootsietoy cars. Gilmour, 16 Great Lawn, Ongar, Essex.

• Model soldiers, metal only. State price, condition, etc. Aldcroft, 23 Mersey View, Waterloo, Liverpool, 22.

• Obsolete Dinky toys, etc. Highest prices, single or collections. Pinnock, 6 Stream Farm, Close, Lower Bourne, Farnham, Surrey.

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• Tudor Minibrix sets T3 and accessory sets TA and TB. State condition and price. R. J. Lindsey, 110 Cock Bank, Whittlesey, Peterborough.

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STAMPS news

by F.E. Metcalfe

Edwardian Stamps

The news which appeared in the newspapers a short while ago, regarding the eye operation which the Duke of Windsor underwent, started a flutter amongst many collectors who found any stamps bearing his portrait, which were issued when he was on the British throne as Edward the VIII. Actually, such stamps are quite common, but I am continually being asked if they are valuable and no matter how often one may report that such stamps are only worth face value, queries continually come from finders, who have read sensational notices on newspapers about stamp varieties worth hundreds of pounds.

"Why are these Edwardian stamps not valuable? They were only on sale for a short time and that was long ago!" is a question I was asked recently by a lady correspondent. The short answer is, of course, that during the period the stamps were on sale, many people bought and put copies away, either for sentimental reasons or because they thought that as time went on they would become valuable. Well, as many collectors did just that, the one cancelled out the other. So, if you have any of these stamps unused, better use them up for postage whilst they are still valid for that purpose.

Omnibus Issues

A young collector wrote me recently, asking me to describe the meaning of omnibus issue. The answer is simple; it is a term now applied to sets of stamps issued by various countries, all to do with one particular subject. For instance; as I write, one is being prepared to commemorate the centenary of the International Telecommunications Union.

Our own country is one of the participants and, as a matter of fact, most of the countries which are members of the union are also issuing special stamps to mark the event. Therefore, taking all the sets together, we get an 'omnibus' issue.

Ghana was the first in the field to mark the centenary, with a set of four stamps, plus a miniature sheet and this was in March, but, most of the sets appeared in May. Of course, while the stamps are coming out, there is quite a rush and prices of those which are not readily available do rise. But, just as such stamps rise, with nothing to sustain them, they come down again. So, while it is quite a good policy to buy these stamps when they are current, it is not wise to pay fancy prices for others, no matter how scarce they appear. Be warned—I have seen it happen many times!

Of course, it is different with omnibus issues of events like the Olympic Games, for every four years a new crop appears and that sustains the interest, but none of us are going to be here when the next centenary of the 'I.T.U.' comes round.

Sepik Prows

What on earth are Sepik Prows? Stamp collectors, who go in for the issues of Papua and New Guinea, will be able to answer that one, for recently that country issued four very attractive stamps, the designs of which were of canoe prows which are on display at the Port Moresby Museum.

These canoe prows came from the Sepik district of the island and apparently, they are very elaborate and beautifully carved. A set of these stamps will be well worth buying, for they will only have a very short life—Papua and New Guinea, along with Australia and other countries, are to change their currency next February. Moreover, now that the Crown Agents in London are handling external sales of the stamps, making them easy for dealers to obtain supplies, such stamps are becoming more popular all the time. I'll have more to say about this later.

Our own stamps

At long last the authorities have come to realise that postage stamps have purposes other than acting as receipts for postal services and they are really trying to do something about the designs, which to date, have not been particularly outstanding. One of the best designers of British stamps was the late Edmund Dulac and he complained that the task of designing a stamp was made much more difficult by having to include the Royal portrait. Therefore, in future, we may see particular designs, marking a special event, where the portrait had been dropped. Anyhow, a fellowship is to be established in what has been described as minuscule design, at the Royal College of Art and the job of the artist selected, will be to submit designs for postage and national savings stamps and related matters. It sounds a good idea providing they appoint the right chap and not one who imagines that a slab of concrete is a thing of beauty and joy for ever and tries to emulate a similar theme on a postage stamp. Unfortunately, the selection committee has not been changed, so considering what they have picked as the best in the past, we can only hope that all will come right in the end. Perhaps at last we will get some stamps as attractive as countries like Austria and Spain.

Tip of the Month

Earlier I mentioned the stamps of Papua and New Guinea and how they were becoming more popular. As I have mentioned before, the islands of Nauru and Norfolk, also dependencies of Australia, can be included in that growing popularity and if you want a nice little group to collect, think about these, along with Australia. Plus, of course, the Cocos Islands and Christmas Island. An interesting quintette to collect and one that will well repay the trouble.



Papua and New Guinea stamps make an interesting collection, while the centenary of the Telecommunications Union provides an omnibus issue. See 'Edwardian Stamps' for 2½d. Edward VIII comment







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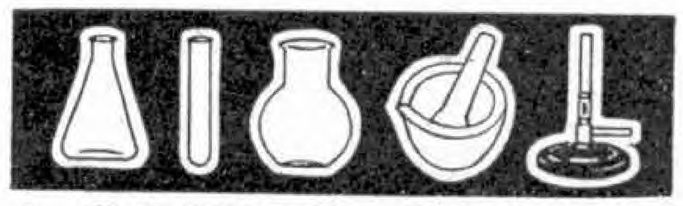
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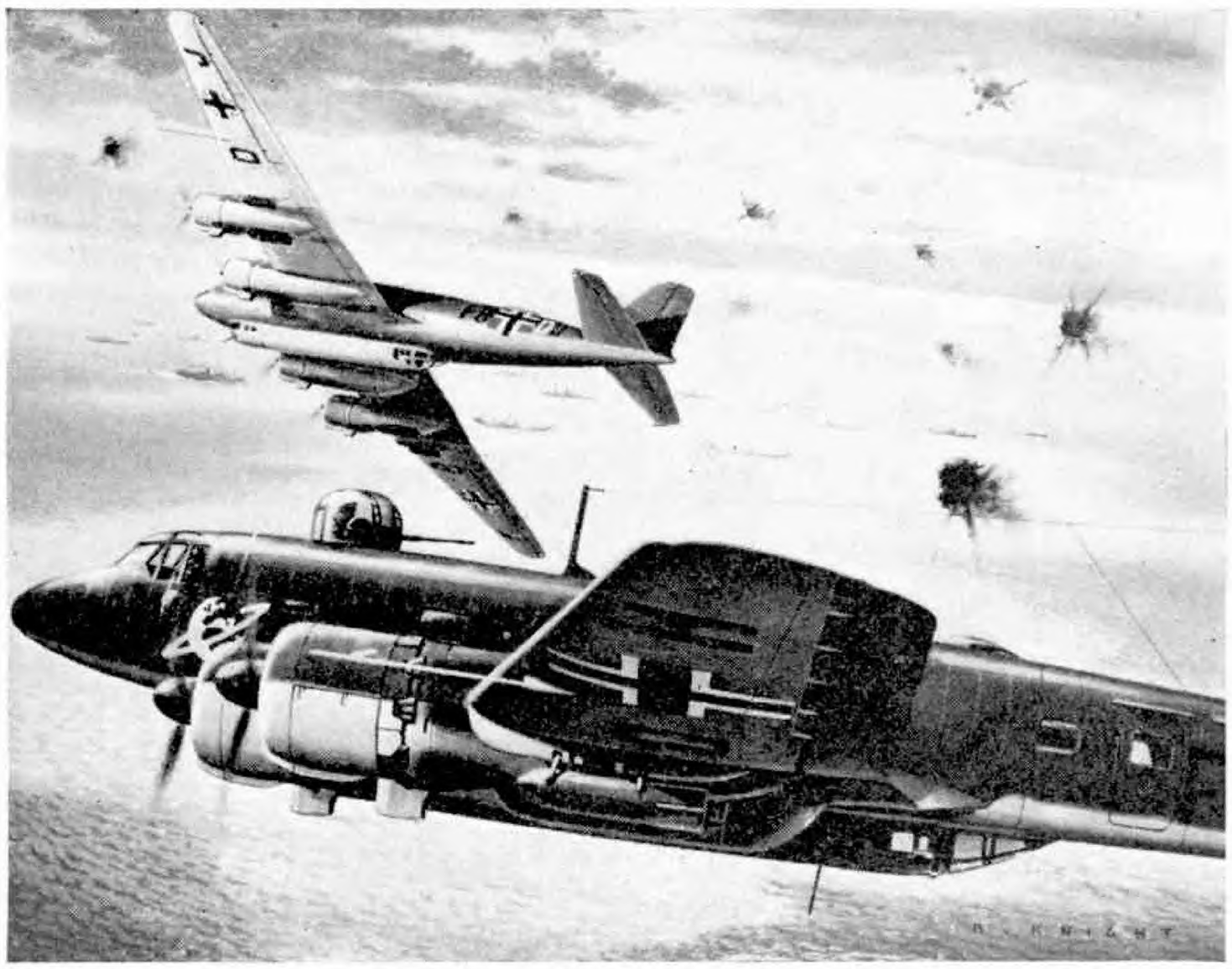
BELOW is a list of fifty names of readers whose entries for last month's 'Silhouette' competition were the first correct answers to be selected by the Editor. If your name appears in this list, then write on a postcard to: *Silhouette Prize, Meccano Magazine, Thos. Skinner & Co. Ltd., St. Alphage House, Fore Street, London, E.C.2*, and claim your FREE Dinky Toy Model Victor 101. If your name does not appear in this list, even though you entered for the competition, do not be disappointed. On page 41 is another of our monthly competitions for you to enter and you may be lucky to see your name among the list of prizewinners next month!

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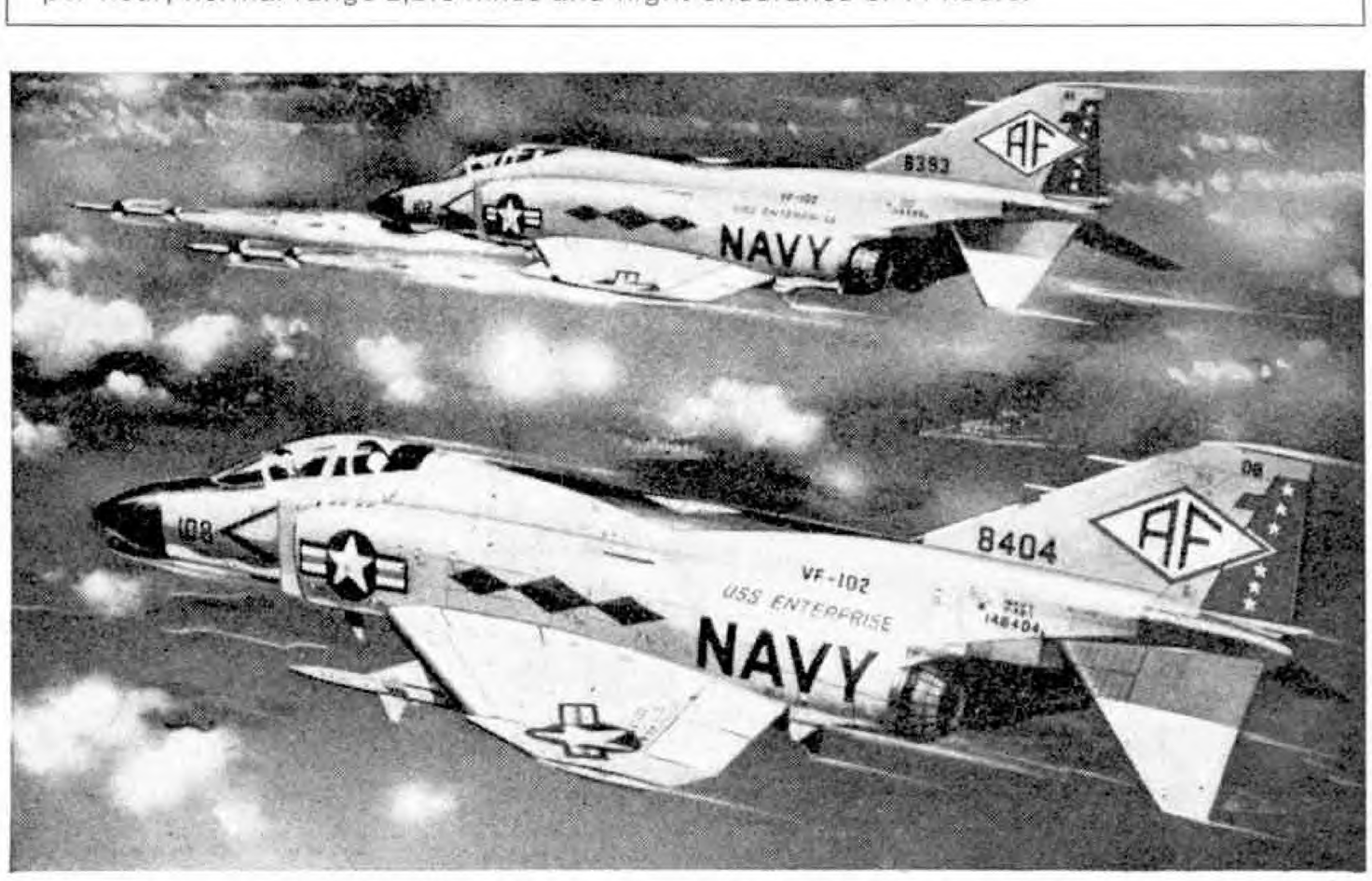
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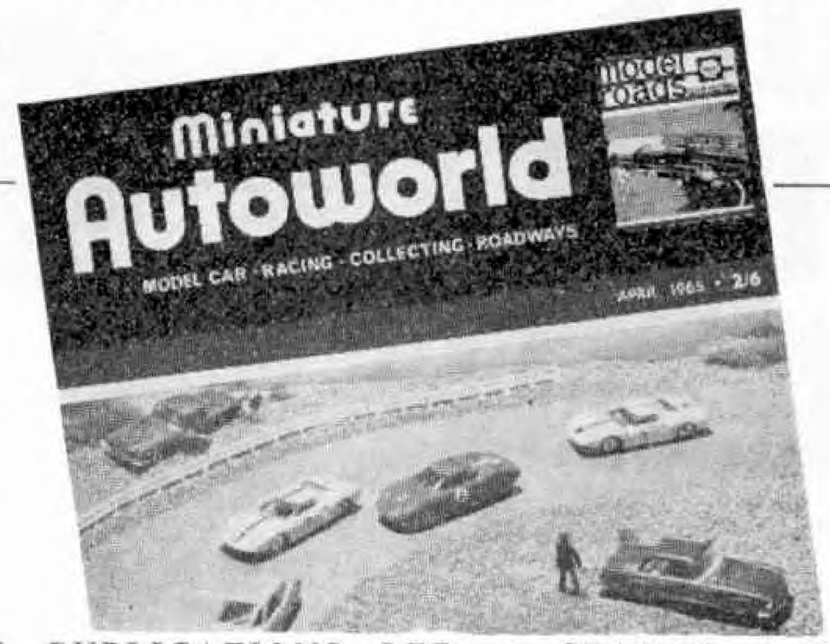
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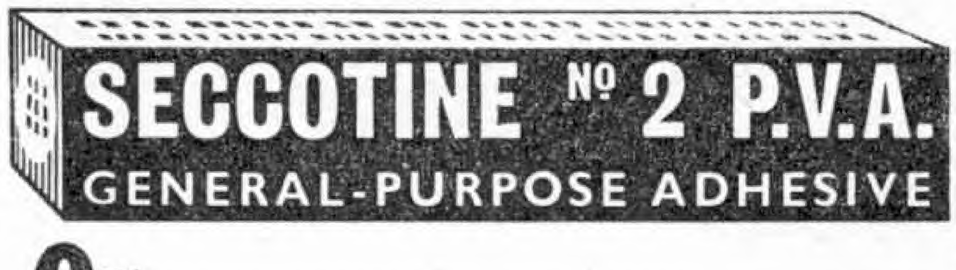


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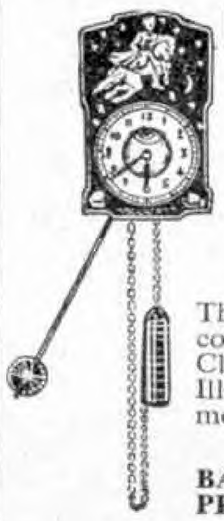
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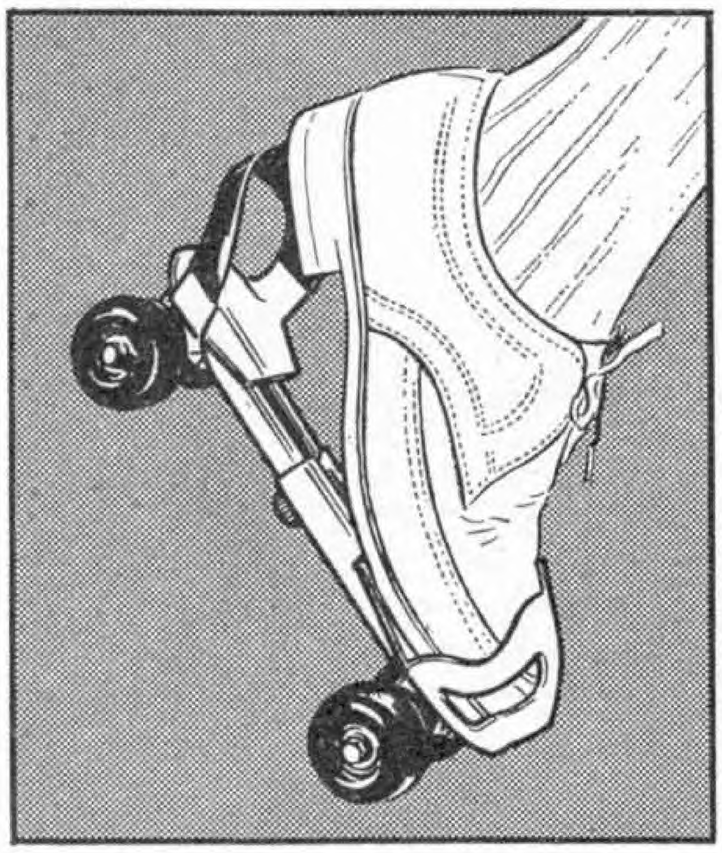


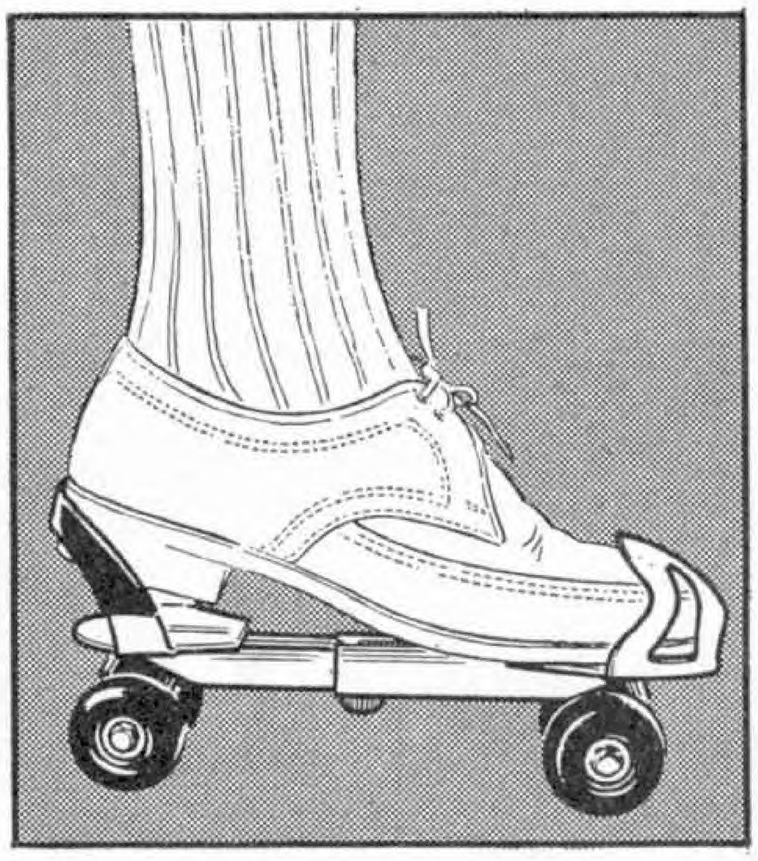
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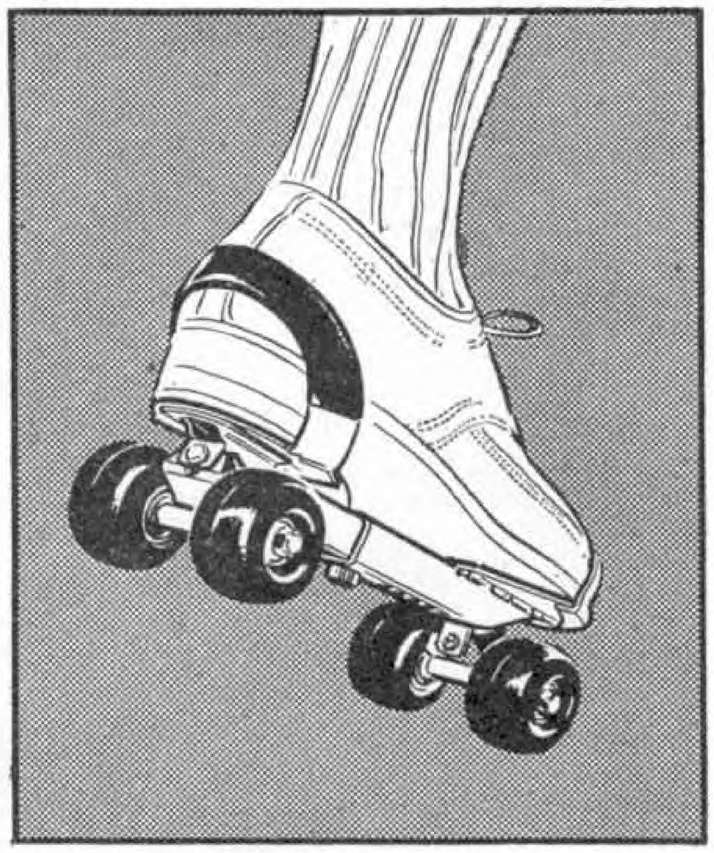
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